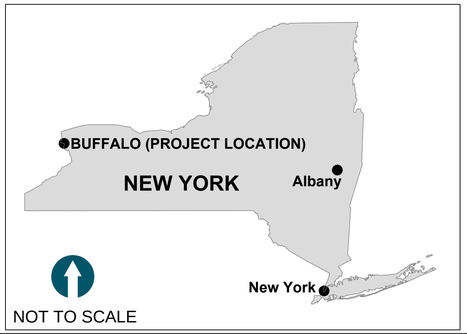
CONSTRUCTION DRAWINGS
BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION



SHEET LIST

SHEET NUMBER	SHEET NAME	SHEET TITLE
01	T-01	COVER SHEET
02	G-01	GENERAL NOTES, LEGEND, AND PLANTING SCHEDULE
03	G-02	STAGING LOCATION OPTIONS
04	C-01	EXISTING CONDITIONS - KATHERINE STREET PENINSULA
05	C-02	EXISTING CONDITIONS - CITY SHIP CANAL
06	C-03	EXISTING CONDITIONS - RIVERBEND (EAST)
07	C-04	EXISTING CONDITIONS - BUFFALO COLOR PENINSULA AND RIVERBEND (WEST)
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10	C-07	HABITAT RESTORATION PLAN VIEW - KATHERINE STREET PENINSULA
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15	C-12	CROSS-SECTIONS - RIVERBEND (EAST)
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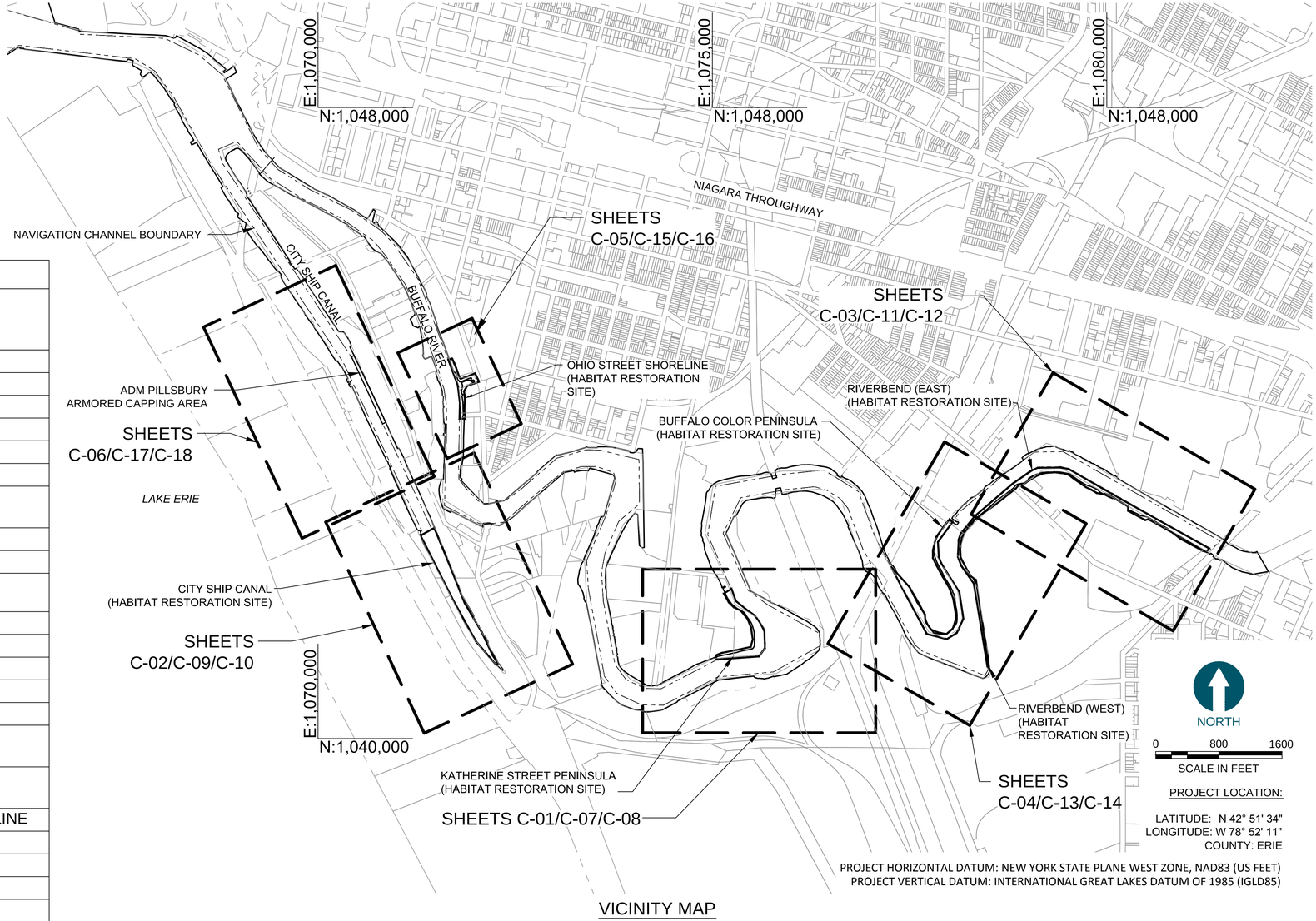
17	C-14	CROSS-SECTIONS - BUFFALO COLOR PENINSULA AND RIVERBEND (WEST)
18	C-15	HABITAT RESTORATION PLAN VIEW - OHIO STREET SHORELINE
19	C-16	CROSS-SECTIONS - OHIO STREET SHORELINE
20	C-17	CAPPING PLAN VIEW - ADM PILLSBURY
21	C-18	CROSS-SECTIONS - ADM PILLSBURY
22	C-19	HABITAT RESTORATION DETAILS (1 OF 2)
23	C-20	HABITAT RESTORATION DETAILS (2 OF 2)



VICINITY MAP

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0287-Honeywell International Inc\Buffalo River Site Strategy & Eng Supt\Construction Plans\T-01.dwg T-01

May 19, 2014 1:05pm chewett

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. REEMTS
DRAWN BY: C. HEWETT
CHECKED BY: S. BAGNULL
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

COVER SHEET

T-01

SHEET NO. **01** OF **23**

EXISTING LEGEND

- CONTOUR MAJOR (5 FT)
- CONTOUR MINOR (1 FT)
- NAVIGATION CHANNEL
- AVERAGE WSEL (571')
- OUTFALL
- ROAD
- ARCHEOLOGICAL POINT BF-5

PROPOSED LEGEND

- RESTORATION AREA BOUNDARY
- STAGING LOCATION
- SUBMERGED AQUATIC VEGETATION (SAV) PLANTING AREA
- EMERGENT VEGETATION (EV) PLANTING AREA
- IN-WATER FILL (564)
- CAP AREA
- GRAVEL SPAWNING BED
- ARMORED CAP AREA
- PORCUPINE CRIB
- LOG POLE
- ROOTWAD LOG
- CONTOUR MAJOR (5 FT)
- CONTOUR MINOR (1 FT)

D / C-08 — DETAIL REFERENCE NAME; DRAWING ON WHICH DETAIL APPEARS "-" INDICATES TYPICAL OR ON SAME DRAWING

1 / - DETAIL SCALE:NTS — DETAIL REFERENCE NAME; DRAWING FROM WHICH DETAIL WAS TAKEN "-" INDICATES TYPICAL OR TAKEN ON SAME DRAWING

A / C-04 — INDICATES DIRECTION SECTION WAS CUT; DRAWING ON WHICH SECTION APPEARS

A / C-03 SECTION SCALE:NTS — SECTION REFERENCE NAME; DRAWING FROM WHICH SECTION WAS TAKEN "-" INDICATES TYPICAL OR TAKEN ON SAME DRAWING

SURVEY NOTES:

1. TOPOGRAPHIC DATA, BATHYMETRIC DATA, UTILITY LOCATION INFORMATION, AND BASE MAP DATA FROM CH2MHILL AND ECOLOGY AND ENVIRONMENT ENGINEERING FINAL DESIGN DRAWING SET TITLED "SEDIMENT REMEDIATION DESIGN BUFFALO RIVER AREA OF CONCERN". THE BATHYMETRIC CONTOURS SHOWN ON THE EXISTING CONDITIONS SHEETS ARE BASED ON POINT DATA PROVIDED BY AFFILIATED RESEARCHERS (OCTOBER 24, 2011). IN AREAS WHERE DATA WAS NOT INCLUDED BY AFFILIATED RESEARCHERS, THE TOPOGRAPHIC AND BATHYMETRIC INFORMATION SHOWN ON THEW ASSOCIATES SURVEY DRAWING WAS USED. EXISTING CONDITIONS DRAWINGS ARE NOT POST DREDGE DRAWINGS AND ACTUAL SITE TOPOGRAPHY AND BATHYMETRY MAY VARY. THE LOCATIONS OF PIERS, OUTFALLS, RAMPS AND OTHER IN-WATER STRUCTURES ARE AS NOTED IN CH2MHILL AND ECOLOGY AND ENVIRONMENT ENGINEERING FINAL DESIGN DRAWING SET. CONTRACTOR SHALL FIELD VERIFY THESE LOCATIONS FOR ACCURACY, AS APPLICABLE.
2. CONTRACTOR SHALL CONFIRM ACTUAL BATHYMETRY PRIOR TO CONSTRUCTION.
3. HORIZONTAL DATUM IS NEW YORK STATE PLAN WEST, NAD83, US FEET.
4. VERTICAL DATUM IS INTERNATIONAL GREAT LAKES DATUM OF 1985 (IGLD85).

PROJECT INFORMATION:

PROJECT LOCATION:	BUFFALO RIVER BUFFALO, ERIE COUNTY, NEW YORK
OWNER:	HONEYWELL INTERNATIONAL
ENGINEER OF RECORD:	ANCHOR QEA ENGINEERING, PLLC 290 ELWOOD DAVIS ROAD LIVERPOOL, NY 13088 CONTACT: JOHN PAUL DOODY, P.E.

ABBREVIATIONS

ABB.	TERM
ABB.	ABBREVIATION
AC.	ACRES
ADM	ARCHER DANIELS MIDLAND
CY	CUBIC YARD
DBH	DIAMETER AT BREAST HEIGHT
DIA.	DIAMETER
DMU	DREDGE MANAGEMENT UNIT
EA.	EACH
EL.	ELEVATION
EX	EXISTING
FT.	FOOT OR FEET
GALV.	GALVANIZED
IN.	INCH OR INCHES
LOC.	LOCATION
LWD	LOW WATER DATUM
MAX.	MAXIMUM
MIN.	MINIMUM
MM	MILLIMETERS
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
O.C.	ON CENTER
P.E.	PROFESSIONAL ENGINEER
QTY.	QUANTITY
SF	SQUARE FOOT OR FEET
SPEC.	SPECIFICATION(S)
SY	SQUARE YARD
TESC	TEMPORARY EROSION AND SEDIMENTATION CONTROL
TYP.	TYPICAL
WSEL	WATER SURFACE ELEVATION

PLANT SCHEDULE: EMERGENT VEGETATION (EV)

COMMON NAME	SPECIES NAME	PLANTING ZONES	SPECIES PROPORTIONS	TOTAL AREA				
				KATHERINE STREET	CITY SHIP CANAL	RIVERBEND (EAST AND WEST)	BUFFALO COLOR PENINSULA	OHIO STREET SHORELINE
AMERICAN WATER PLANTAIN	*Alisma subcordatum*	ALL ZONES (TOLERATES 1-2' WATER DEPTH)	FOR EACH RESTORATION AREA, AT LEAST EIGHT EMERGENT PLANT SPECIES MUST BE SELECTED FROM THE LIST AND NO SPECIES SHALL COMPRISE MORE THAN 40% OF THE TOTAL QUANTITY	0.18 AC.	0.83 AC.	0.88 AC.	1.17 AC.	0.05 AC.
TUSSOCK SEDGE	*Carex stricta*	ALL ZONES (TOLERATES 1-2' WATER DEPTH)						
FOX SEDGE	*Carex vulpinoides*	HIGH ZONE (TOLERATES 0.5' WATER DEPTH)						
SMALL SPIKE RUSH	*Eleocharis parvula*	HIGH ZONE (TOLERATES 0.5' WATER DEPTH)						
SOFT RUSH	*Juncus effusus*	MIDDLE ZONE (TOLERATES 1' WATER DEPTH)						
AMERICAN WATERWILLOW	*Justicia americana*	MIDDLE ZONE (TOLERATES 1' WATER DEPTH)						
WATER SMARTWEED	*Polygonum amphibium*	MIDDLE ZONE (TOLERATES 1' WATER DEPTH)						
RIVER BULRUSH	*Schoenoplectus fluvitalis*	MIDDLE ZONE (TOLERATES 1' WATER DEPTH)						
SOFT STEM BULRUSH	*Schoenoplectus tabernaemontani*	MIDDLE ZONE (TOLERATES 1' WATER DEPTH)						
WOOL GRASS	*Scirpus cyperinus*	HIGH ZONE (TOLERATES 0.5' WATER DEPTH)						

PLANT SCHEDULE: SUBMERGED AQUATIC VEGETATION (SAV)

COMMON NAME	SPECIES NAME	PLANTING ZONES	SPECIES PROPORTIONS	TOTAL AREA				
				KATHERINE STREET	CITY SHIP CANAL	RIVERBEND (EAST AND WEST)	BUFFALO COLOR PENINSULA	OHIO STREET SHORELINE
COMMON WATERWEED	*Elodea canadensis*	ALL (TOLERATES WATER DEPTHS TO 6')	FOR EACH RESTORATION AREA, AT LEAST THREE SUBMERGED AQUATIC PLANT SPECIES MUST BE SELECTED FROM THE LIST; ONE OF THE SPECIES MUST BE WILD CELERY, WHICH CAN COMPRISE UP TO 75% OF THE TOTAL QUANTITY.	1.02 AC.	2.46 AC.	0.48 AC.	0.42 AC.	N/A
FLOATING PONDWEED	*Potamogeton natans*	ALL (TOLERATES WATER DEPTHS TO 6')						
AMERICAN PONDWEED	*Potamogeton nodosus*	ALL (TOLERATES WATER DEPTHS TO 6')						
SAGO PONDWEED	*Stuckenia pectinata*	ALL (TOLERATES WATER DEPTHS TO 6')						
WILD CELERY	*Vallisneria americana*	ALL (TOLERATES WATER DEPTHS TO 6')						

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. REEMTS
DRAWN BY: C. HEWETT
CHECKED BY: S. BAGNULL
APPROVED BY: P. DOODY
DATE: MAY 2014

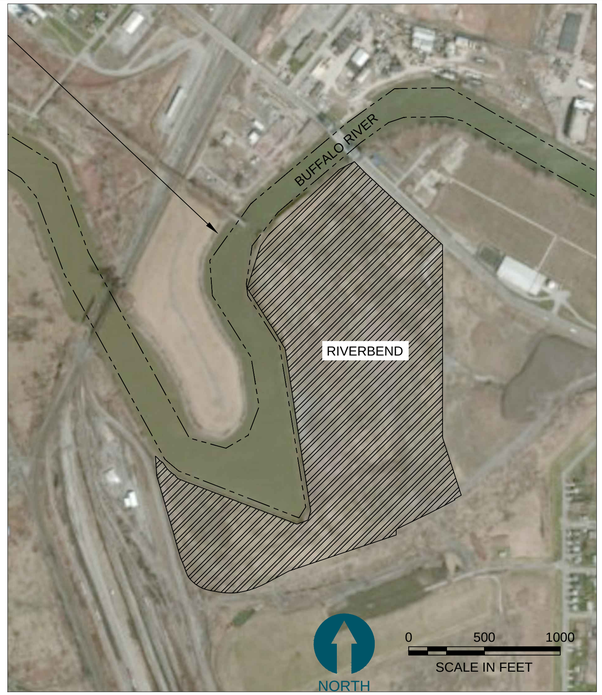
BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

GENERAL NOTES, LEGEND, AND PLANTING SCHEDULE

G-01

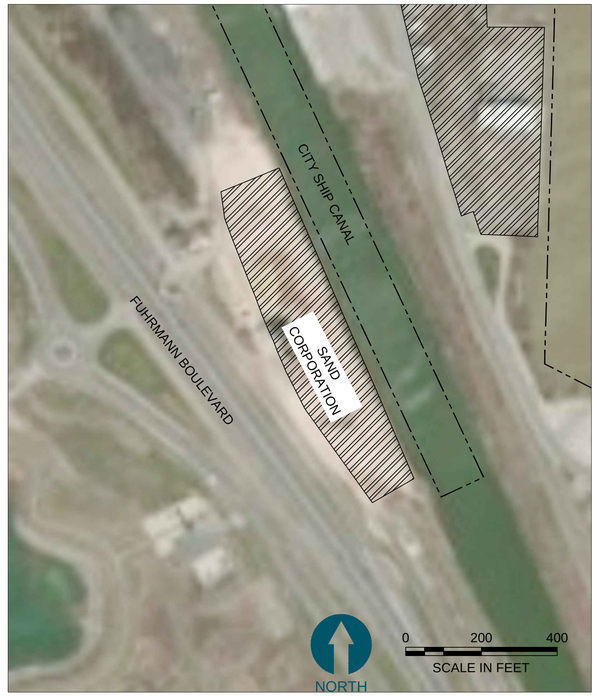
SHEET NO. 02 OF 23

K:\Projects\0287-Honeywell International Inc\Buffalo River Site Strategy & Eng Sup\Construction Plans\G-01.dwg G-01
May 19, 2014 1:05pm chewett



NOTES:

1. ILLUSTRATED STAGING LOCATIONS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR SHALL EVALUATE POTENTIAL PROPERTIES BASED ON THEIR STAGING AND ACCESS REQUIREMENTS AND COORDINATE WITH THE PROPERTY OWNERS FOR ACCESS AND USE IF SELECTED.
2. SITE CONDITIONS MAY CHANGE FROM THOSE DEPICTED ON THIS DRAWING AT THE TIME OF WORK. LOCATIONS AND PROPERTY BOUNDARIES SHOWN ARE APPROXIMATE.
3. AERIAL IMAGE FROM BING MAPS, DATED APRIL 15, 2011.



ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0287-Honeywell International Inc\Buffalo River Site Strategy & Eng Supt\Construction Plans\G-02.dwg G-02

May 19, 2014 1:06pm chewett

ANCHOR QEA

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REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

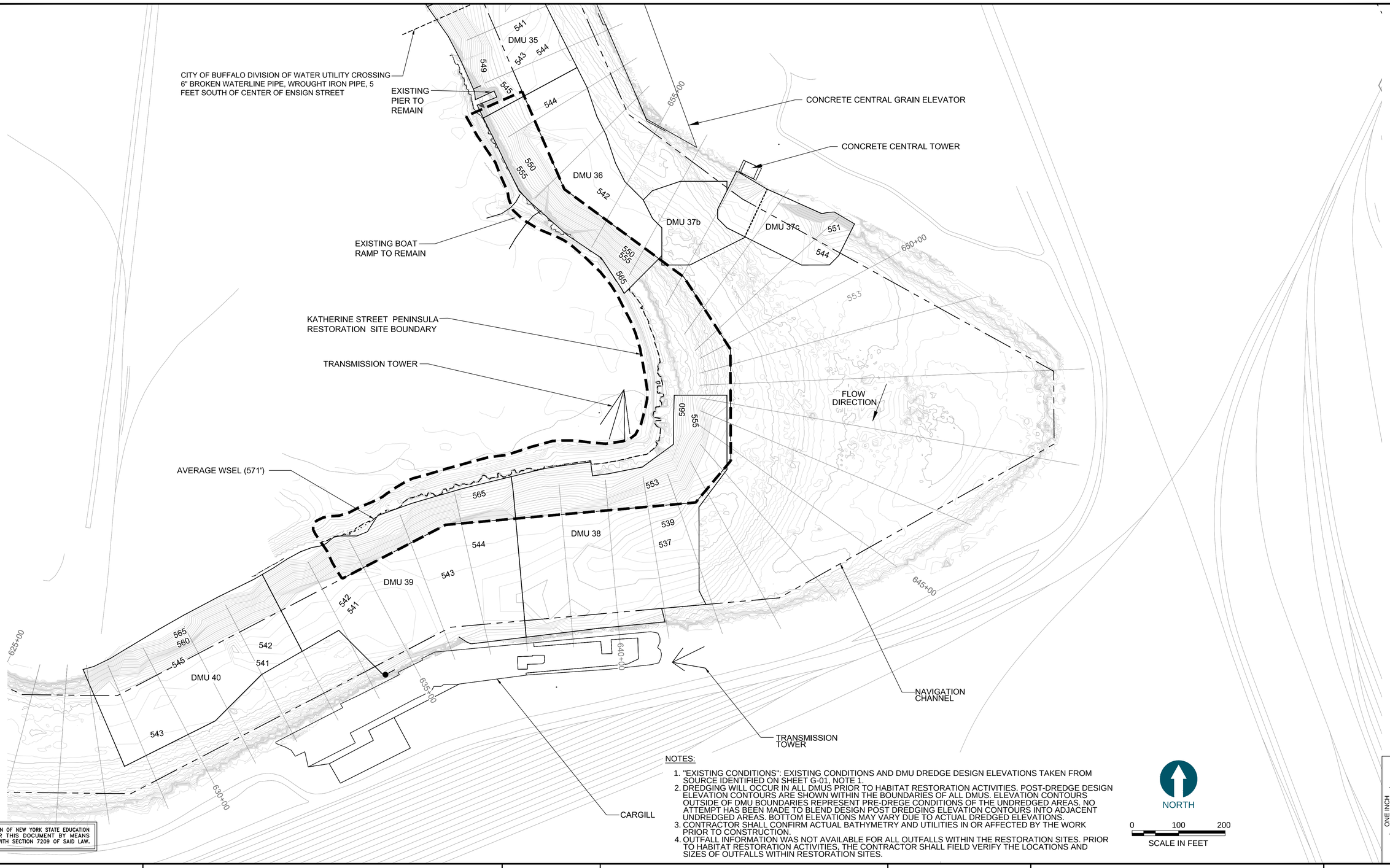
DESIGNED BY: M. REEMTS
DRAWN BY: C. HEWETT
CHECKED BY: S. BAGNULL
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

STAGING LOCATION OPTIONS

G-02

SHEET NO. **03** OF **23**



NOTES:

1. "EXISTING CONDITIONS": EXISTING CONDITIONS AND DMU DREDGE DESIGN ELEVATIONS TAKEN FROM SOURCE IDENTIFIED ON SHEET G-01, NOTE 1.
2. DREDGING WILL OCCUR IN ALL DMUS PRIOR TO HABITAT RESTORATION ACTIVITIES. POST-DREDGE DESIGN ELEVATION CONTOURS ARE SHOWN WITHIN THE BOUNDARIES OF ALL DMUS. ELEVATION CONTOURS OUTSIDE OF DMU BOUNDARIES REPRESENT PRE-DREGE CONDITIONS OF THE UNDREDGED AREAS. NO ATTEMPT HAS BEEN MADE TO BLEND DESIGN POST DREDGING ELEVATION CONTOURS INTO ADJACENT UNDREDGED AREAS. BOTTOM ELEVATIONS MAY VARY DUE TO ACTUAL DREDGED ELEVATIONS.
3. CONTRACTOR SHALL CONFIRM ACTUAL BATHYMETRY AND UTILITIES IN OR AFFECTED BY THE WORK PRIOR TO CONSTRUCTION.
4. OUTFALL INFORMATION WAS NOT AVAILABLE FOR ALL OUTFALLS WITHIN THE RESTORATION SITES. PRIOR TO HABITAT RESTORATION ACTIVITIES, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND SIZES OF OUTFALLS WITHIN RESTORATION SITES.

NORTH

0 100 200

SCALE IN FEET

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: M. REEMTS
DRAWN BY: C. HEWETT
CHECKED BY: S. BAGNULL
APPROVED BY: P. DOODY
DATE: MAY 2014

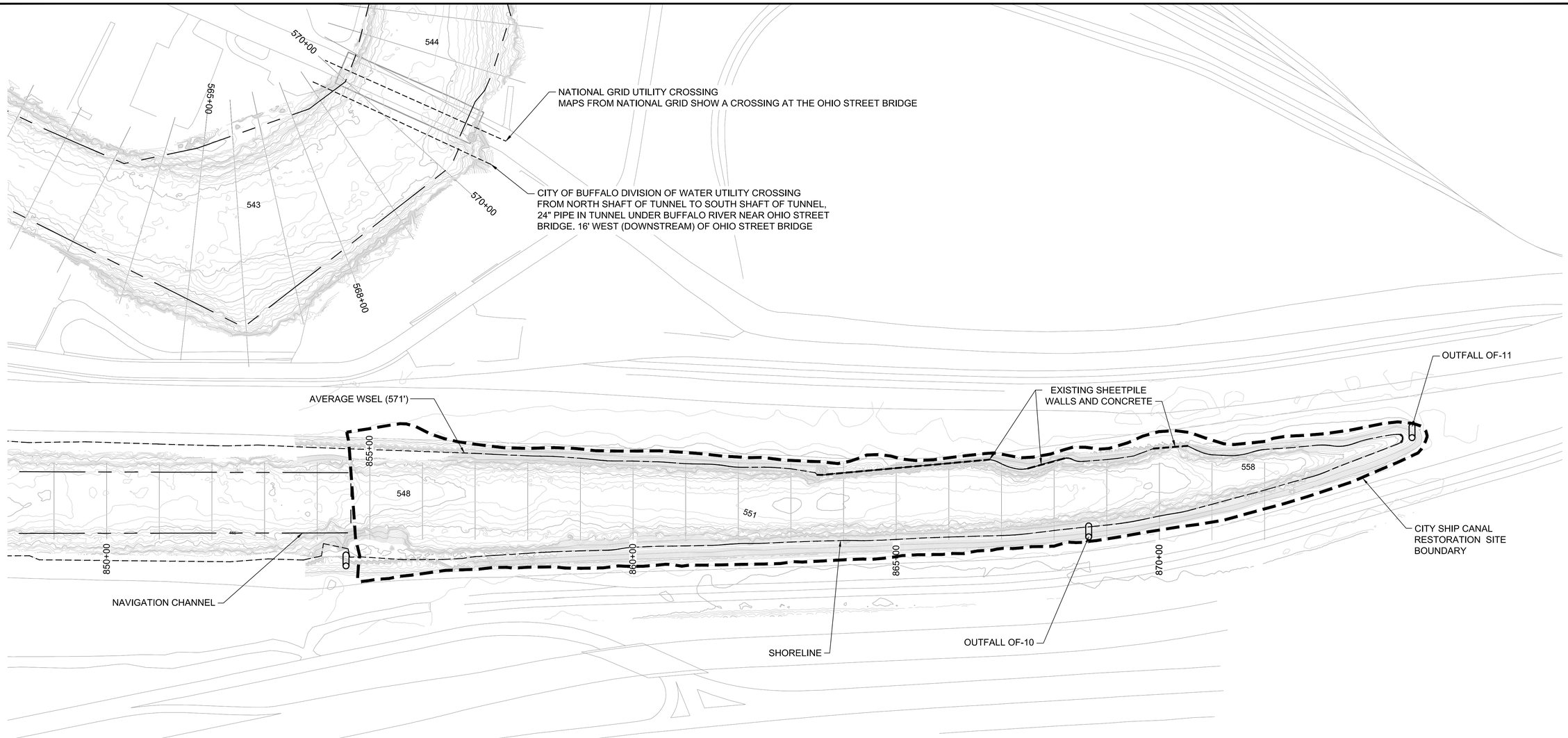
BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

EXISTING CONDITIONS - KATHERINE STREET PENINSULA

C-01

SHEET NO. 04 OF 23

K:\Projects\0287-Honeywell International Inc\Buffalo River Site Strategy & Eng Sup\Construction Plans\C-01.dwg C-01
May 19, 2014 1:06pm chewett



OUTFALLS	
OUTFALL ID	OUTFALL DIAMETER (INCHES)
OF-10	24
OF-11	24

NOTES:

1. "EXISTING CONDITIONS": EXISTING CONDITIONS AND ELEVATIONS TAKEN FROM SOURCE IDENTIFIED ON SHEET G-01, NOTE 1.
2. CONTRACTOR SHALL CONFIRM ACTUAL BATHYMETRY AND UTILITIES IN OR AFFECTED BY THE WORK PRIOR TO CONSTRUCTION.
3. DEBRIS MAY BE ENCOUNTERED IN THE WATER AND ON THE SHORE. DEBRIS THAT INTERFERES WITH CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR FOLLOWING APPROVAL OF A DEBRIS REMOVAL AND MANAGEMENT WORK PLAN.
4. OUTFALL INFORMATION WAS NOT AVAILABLE FOR ALL OUTFALLS WITHIN THE RESTORATION SITES. PRIOR TO HABITAT RESTORATION ACTIVITIES, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND SIZES OF OUTFALLS WITHIN RESTORATION SITES.

NORTH

0 100 200

SCALE IN FEET

ONE INCH

AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

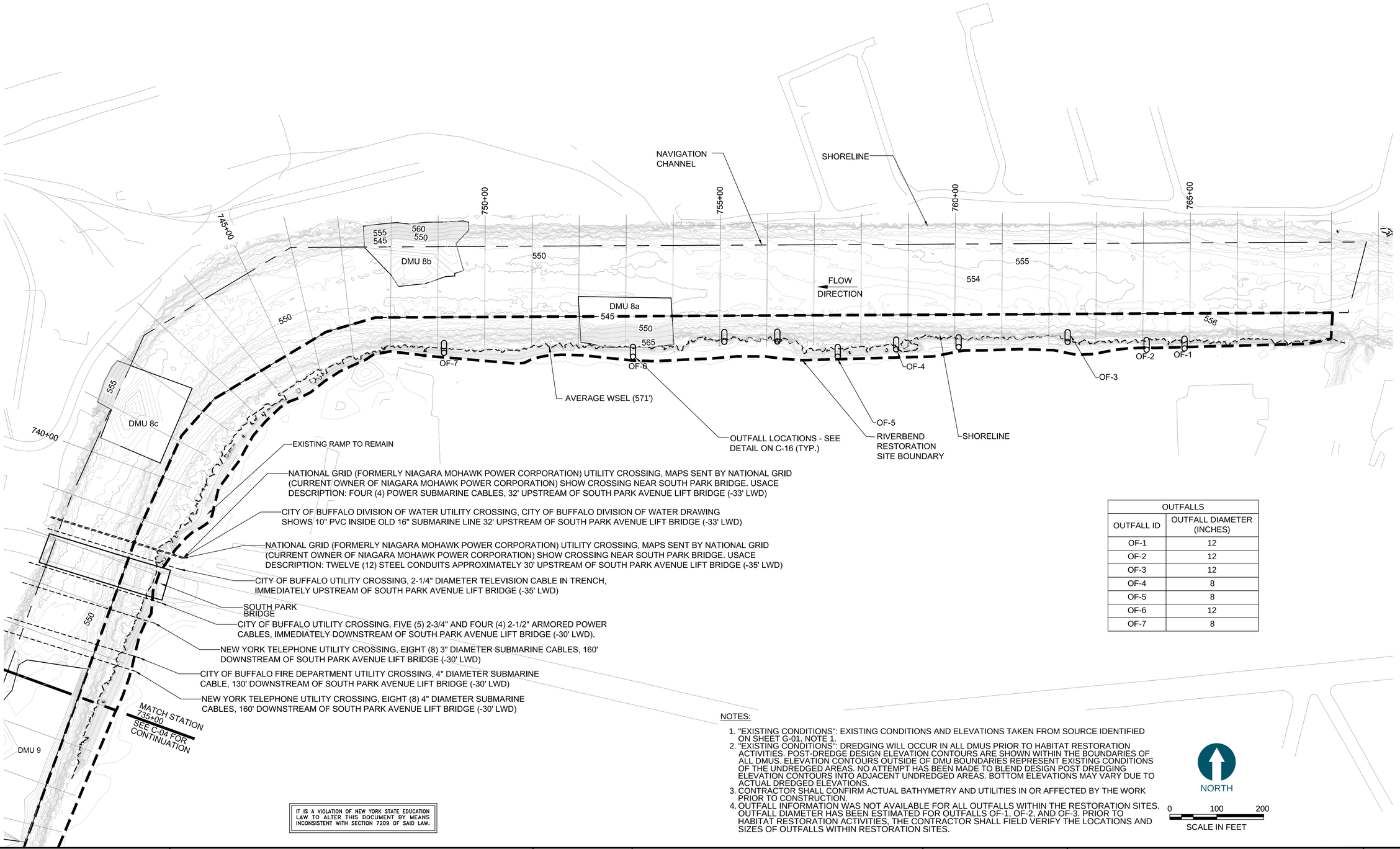
DESIGNED BY: M. REEMTS
DRAWN BY: C. HEWETT
CHECKED BY: S. BAGNULL
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

EXISTING CONDITIONS - CITY SHIP CANAL

C-02

SHEET NO. 05 OF 23



OUTFALLS	
OUTFALL ID	OUTFALL DIAMETER (INCHES)
OF-1	12
OF-2	12
OF-3	12
OF-4	8
OF-5	8
OF-6	12
OF-7	8

NOTES:

1. "EXISTING CONDITIONS": EXISTING CONDITIONS AND ELEVATIONS TAKEN FROM SOURCE IDENTIFIED ON SHEET G-01, NOTE 1.
2. "EXISTING CONDITIONS": DREDGING WILL OCCUR IN ALL DMUS PRIOR TO HABITAT RESTORATION ACTIVITIES. POST-DREDGE DESIGN ELEVATION CONTOURS ARE SHOWN WITHIN THE BOUNDARIES OF ALL DMUS. ELEVATION CONTOURS OUTSIDE OF DMU BOUNDARIES REPRESENT EXISTING CONDITIONS OF THE UNDREDGED AREAS. NO ATTEMPT HAS BEEN MADE TO BLEND DESIGN POST DREDGING ELEVATION CONTOURS INTO ADJACENT UNDREDGED AREAS. BOTTOM ELEVATIONS MAY VARY DUE TO ACTUAL DREDGED ELEVATIONS.
3. CONTRACTOR SHALL CONFIRM ACTUAL BATHYMETRY AND UTILITIES IN OR AFFECTED BY THE WORK PRIOR TO CONSTRUCTION.
4. OUTFALL INFORMATION WAS NOT AVAILABLE FOR ALL OUTFALLS WITHIN THE RESTORATION SITES. OUTFALL DIAMETER HAS BEEN ESTIMATED FOR OUTFALLS OF-1, OF-2, AND OF-3. PRIOR TO HABITAT RESTORATION ACTIVITIES, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND SIZES OF OUTFALLS WITHIN RESTORATION SITES.

NORTH

0 100 200

SCALE IN FEET

ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS				
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DESIGNED BY: M. REEMTS
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DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

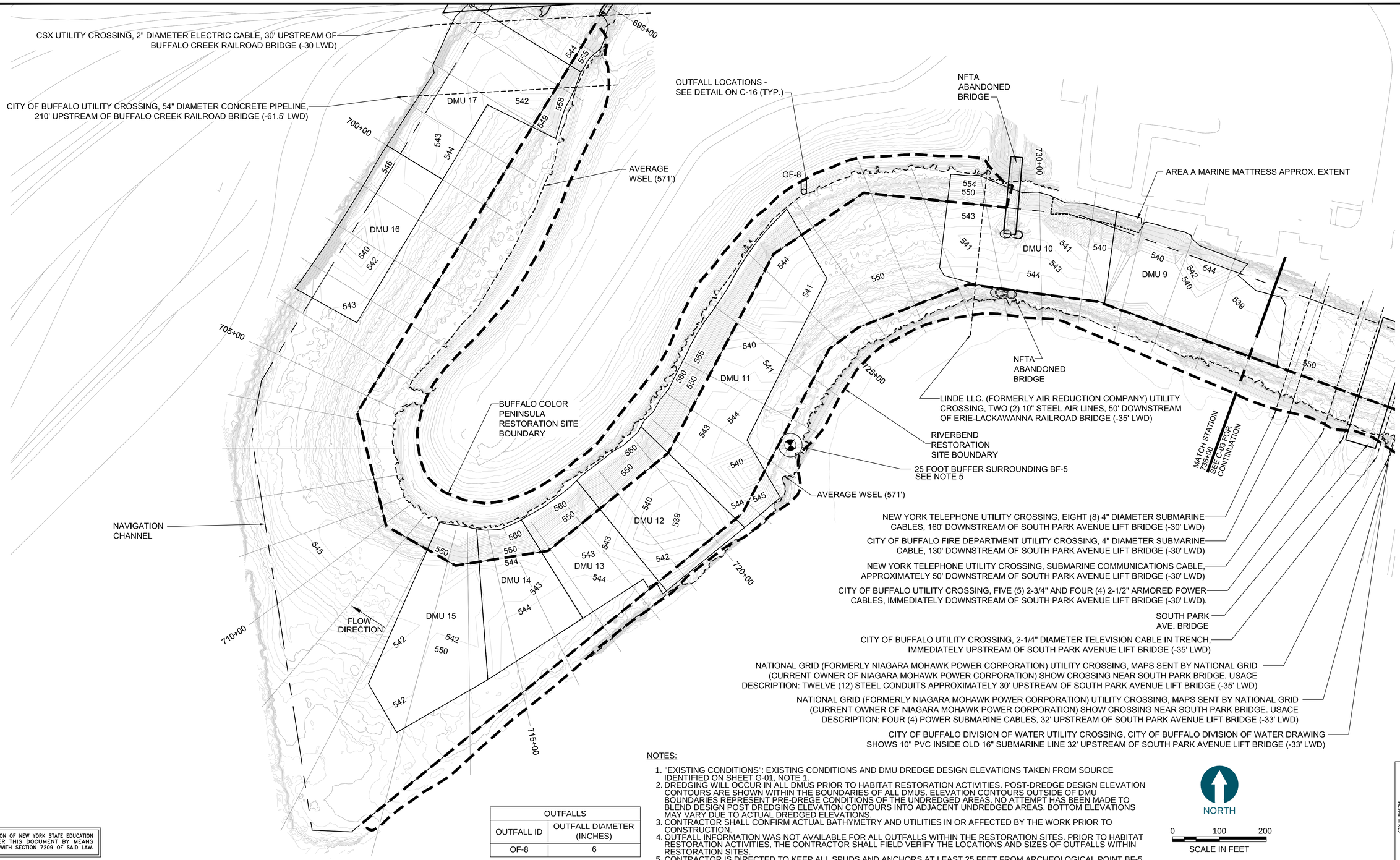
EXISTING CONDITIONS - RIVERBEND (EAST)

C-03

SHEET NO. 06 OF 23

K:\Projects\0287-Honeywell International Inc\Buffalo River Site Strategy & Eng Supt\Construction Plans\C-03.dwg C-03

May 19, 2014 1:07pm chewett



OUTFALLS	
OUTFALL ID	OUTFALL DIAMETER (INCHES)
OF-8	6

NOTES:

1. "EXISTING CONDITIONS": EXISTING CONDITIONS AND DMU DREDGE DESIGN ELEVATIONS TAKEN FROM SOURCE IDENTIFIED ON SHEET G-01, NOTE 1.
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4. OUTFALL INFORMATION WAS NOT AVAILABLE FOR ALL OUTFALLS WITHIN THE RESTORATION SITES. PRIOR TO HABITAT RESTORATION ACTIVITIES, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND SIZES OF OUTFALLS WITHIN RESTORATION SITES.
5. CONTRACTOR IS DIRECTED TO KEEP ALL SPUDS AND ANCHORS AT LEAST 25 FEET FROM ARCHEOLOGICAL POINT BF-5.

NORTH

0 100 200

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

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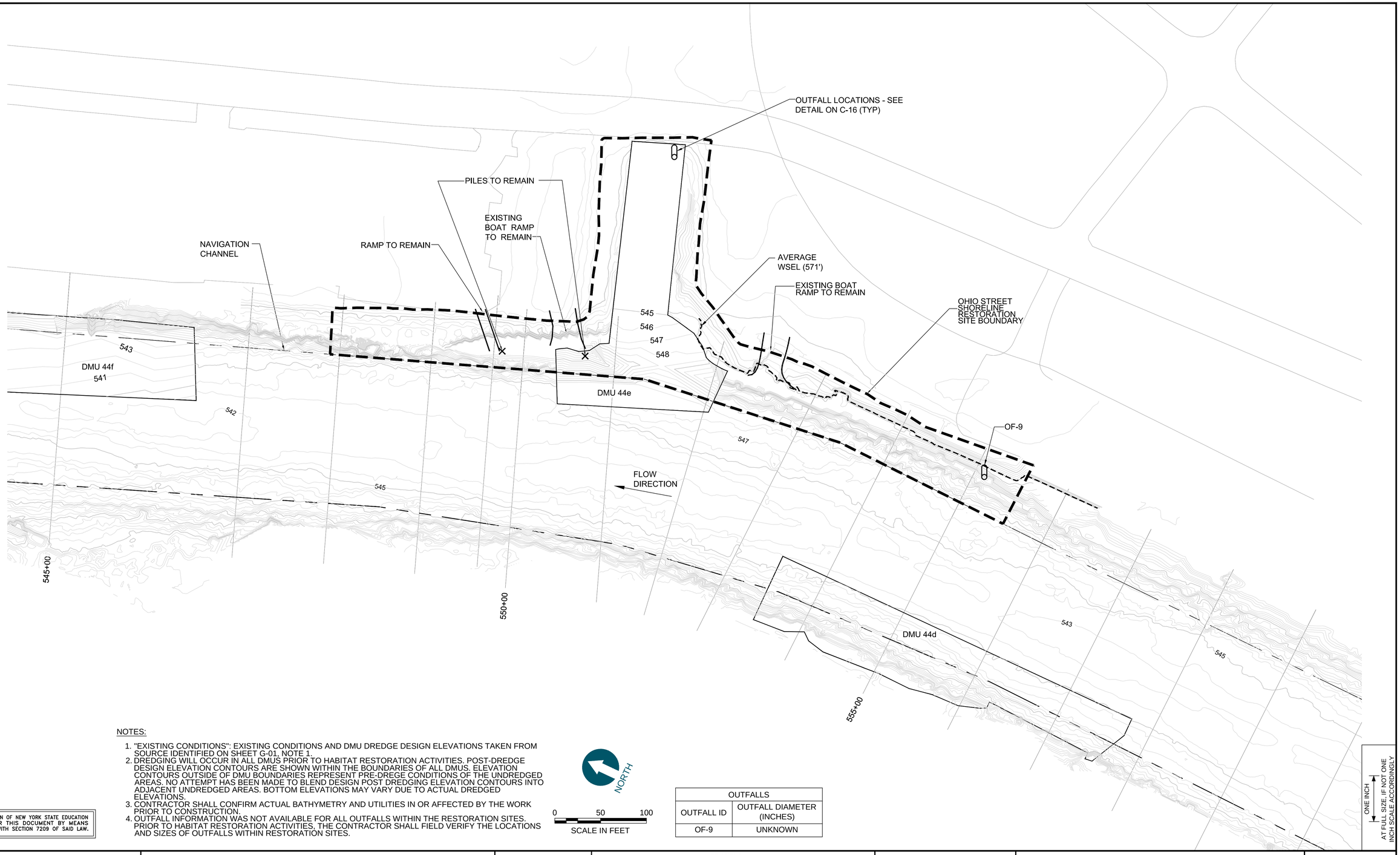
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

EXISTING CONDITIONS - BUFFALO COLOR PENINSULA AND RIVERBEND (WEST)

C-04

SHEET NO. 07 OF 23



NOTES:

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NORTH

0 50 100

SCALE IN FEET

OUTFALLS	
OUTFALL ID	OUTFALL DIAMETER (INCHES)
OF-9	UNKNOWN

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

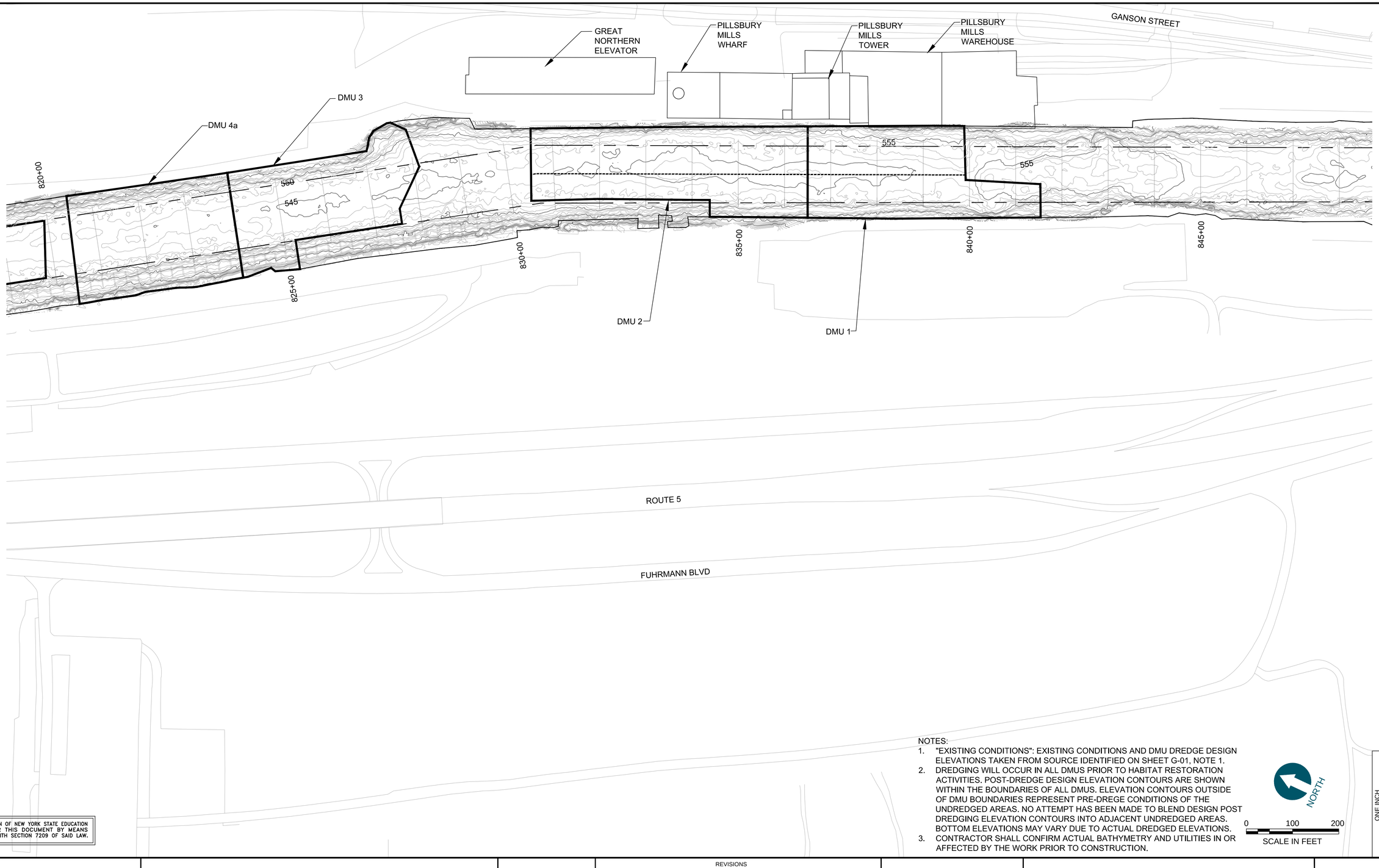
DESIGNED BY: M. REEMTS
DRAWN BY: C. HEWETT
CHECKED BY: S. BAGNULL
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

EXISTING CONDITIONS - OHIO STREET SHORELINE

C-05

SHEET NO. 08 OF 23



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NORTH

0 100 200
SCALE IN FEET

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

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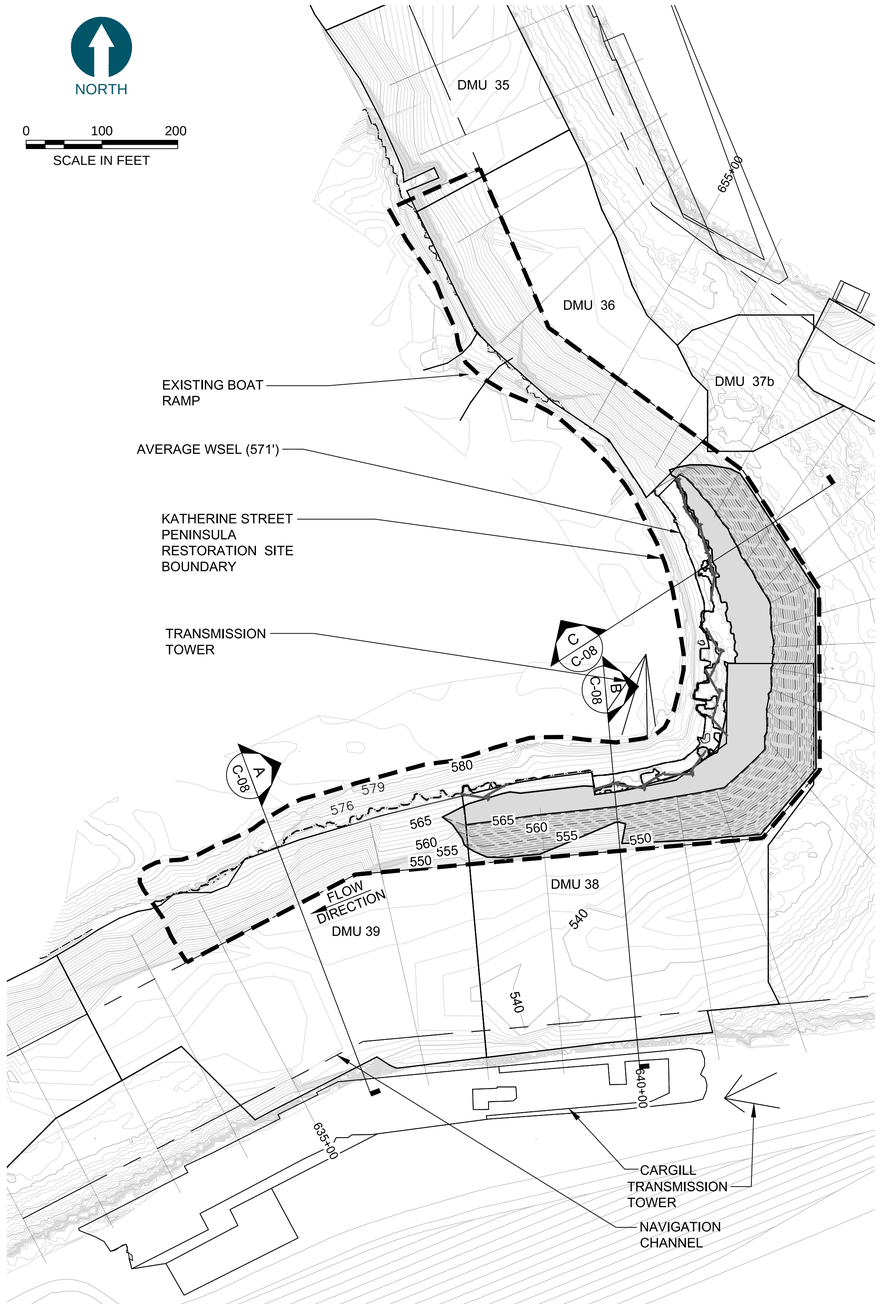
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

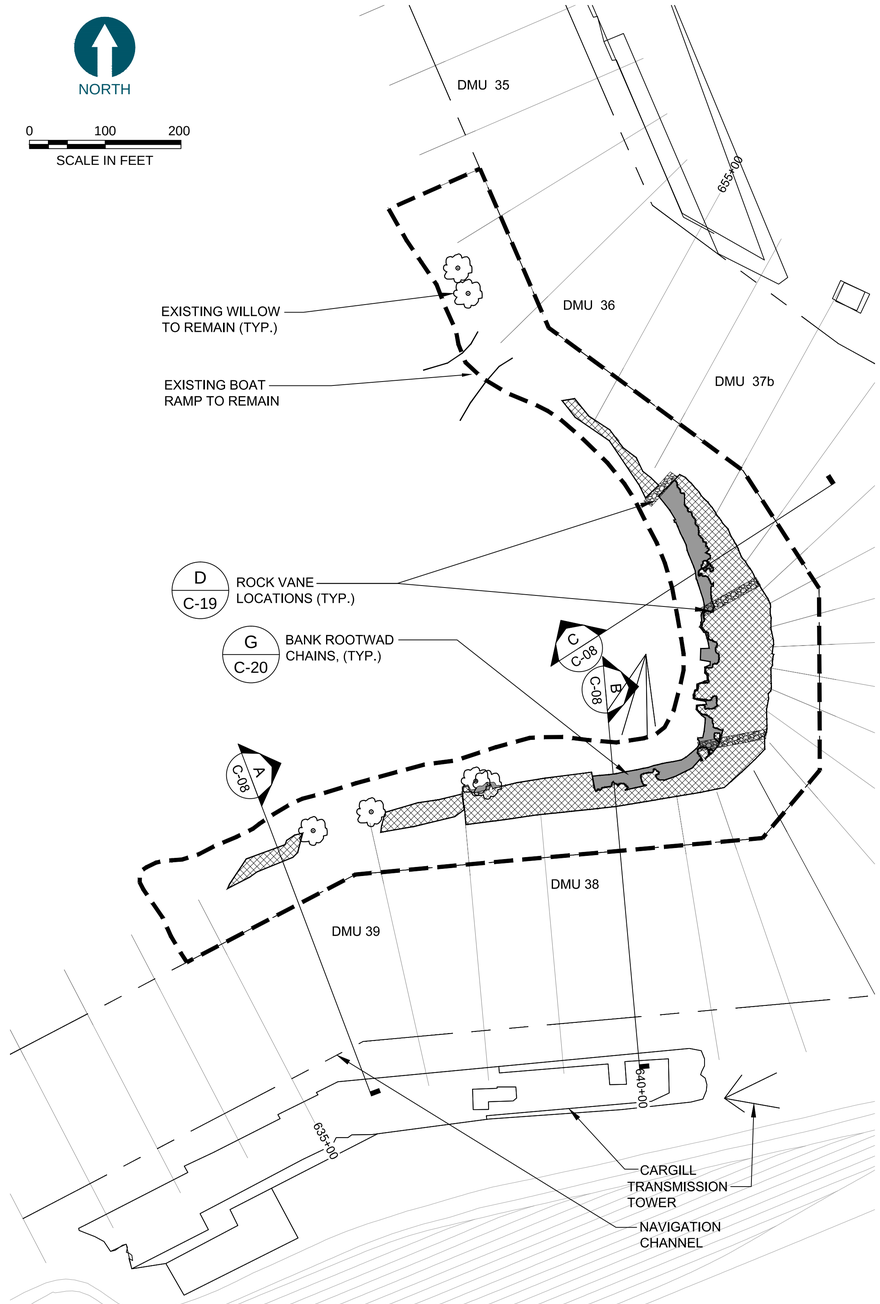
EXISTING CONDITIONS - ADM PILLSBURY

C-06

SHEET NO. 09 OF 23



GRADING/BACKFILL PLAN



HABITAT RESTORATION PLAN

LEGEND

- RESTORATION AREA BOUNDARY
- AVERAGE WSEL (571')
- NAVIGATION CHANNEL
- SUBMERGED AQUATIC VEGETATION (SAV) PLANTING AREA
- EMERGENT VEGETATION (EV) PLANTING AREA
- 565 HABITAT SUBGRADE MATERIAL
- ROCK VANE
- PROPOSED BANK ROOTWAD CHAIN

NOTES

1. ALL TREES GREATER THAN 2.0 FEET DBH SHALL REMAIN. ALL EXCEPTIONS MUST BE APPROVED BY THE ENGINEER.
2. FOR DETAILS ON THE VARIOUS PLANTING TYPES (SAV & EV), SEE G-01. REFER TO SPECIFICATION FOR PLANT PREPARATION AND PLANTING EXECUTION. THE UPLAND LIMIT OF THE EV PLANTINGS IS AT 571' ELEVATION. FIELD VERIFY THE 571' ELEVATION.
3. HABITAT SUBGRADE MATERIAL SHALL BE PLACED FOLLOWING DREDGING TO ESTABLISH APPROPRIATE ELEVATIONS FOR SAV PLANTINGS ALONG THE SHORELINE. ACTUAL FILL REQUIRED SHALL BE BASED ON CONTRACTOR'S PRE-RESTORATION SURVEY.
4. NO MATERIAL MAY BE PLACED IN NAVIGATION CHANNEL OR WITHIN 5' OFFSET FROM NAVIGATION CHANNEL.

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

HABITAT RESTORATION PLAN VIEW - KATHERINE STREET PENINSULA

C-07

SHEET NO. 10 OF 23

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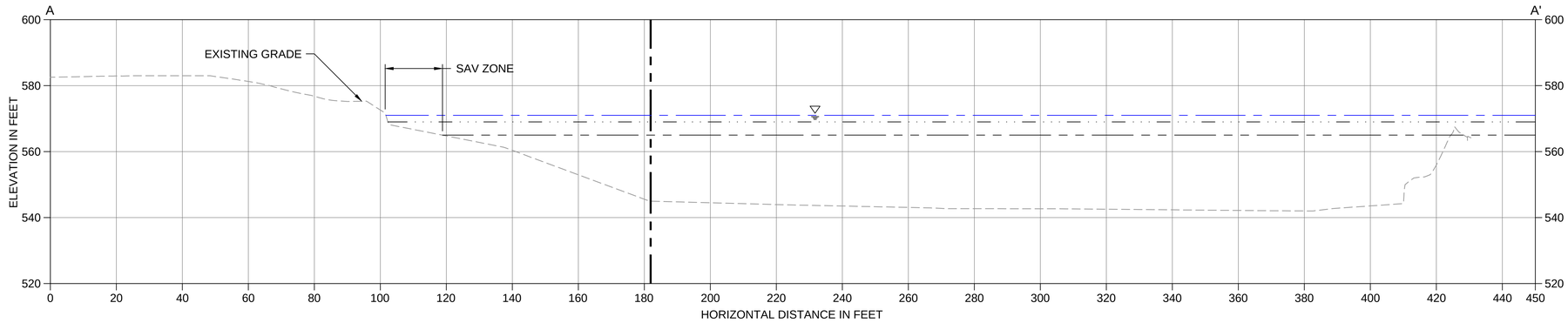
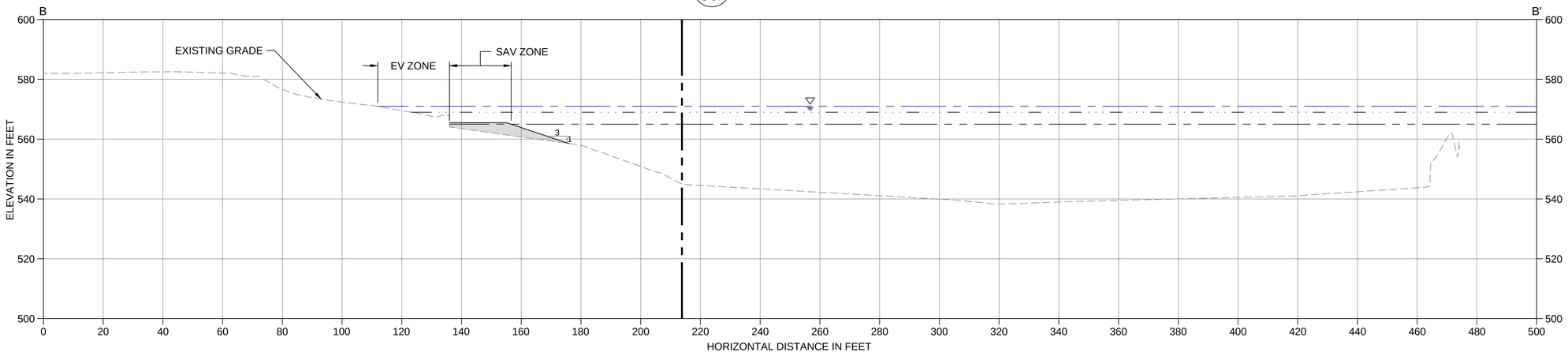
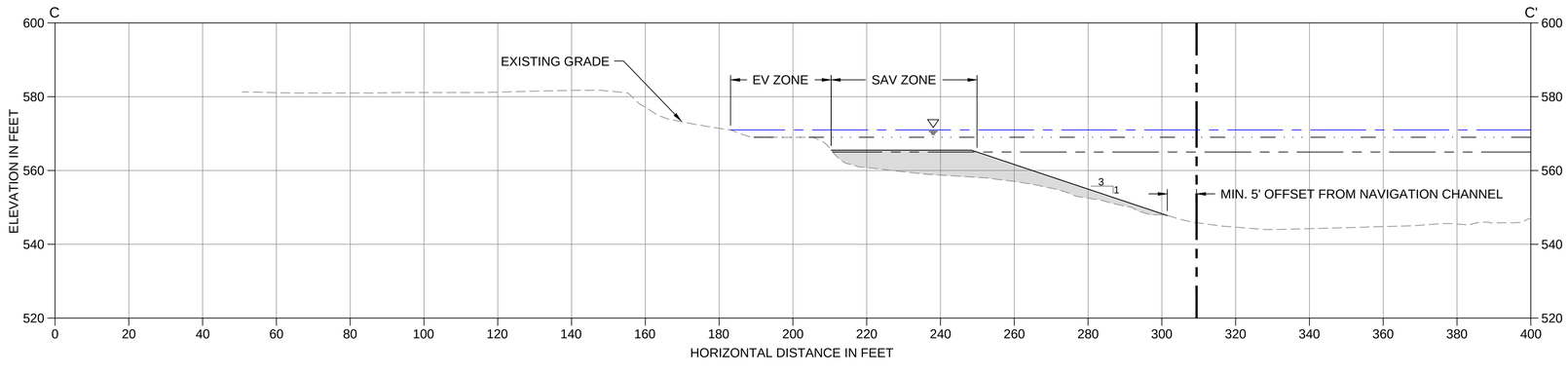


A C-07 SECTION A-A'
SCALE:1" = 20'



B C-07 SECTION B-B'
SCALE:1" = 20'



C C-07 SECTION C-C'
SCALE:1" = 20'

LEGEND:

- EXISTING MUDLINE
- AVERAGE WSEL (571')
- FINISHED SUBGRADE
- EV ZONE LOWER ELEVATION LIMIT (569')
- SAV ZONE LOWER ELEVATION LIMIT (565')
- NAVIGATION CHANNEL BOUNDARY
- HABITAT SUBGRADE MATERIAL

0 20 40
SCALE IN FEET

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

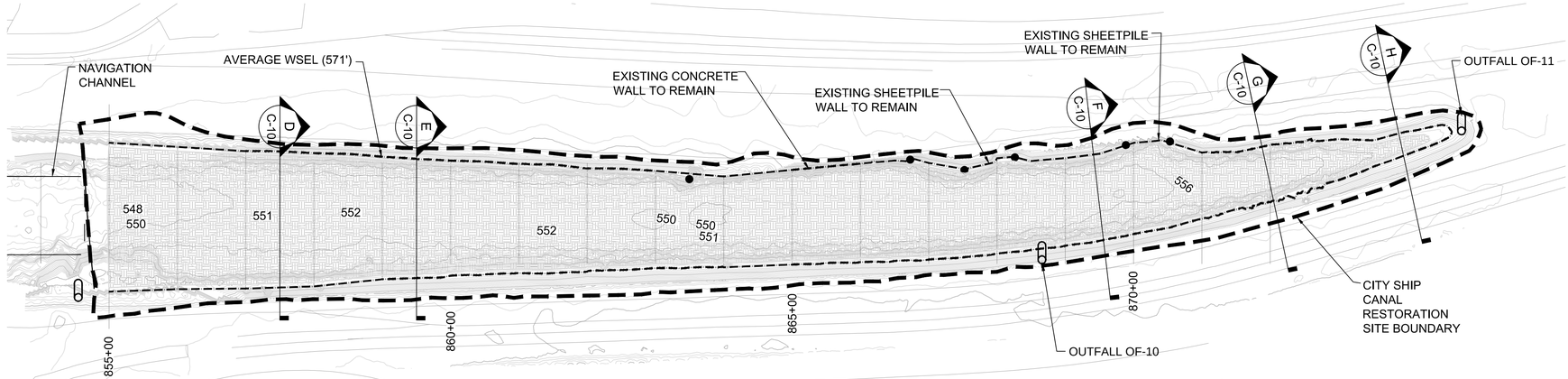
BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

CROSS-SECTIONS - KATHERINE STREET PENINSULA

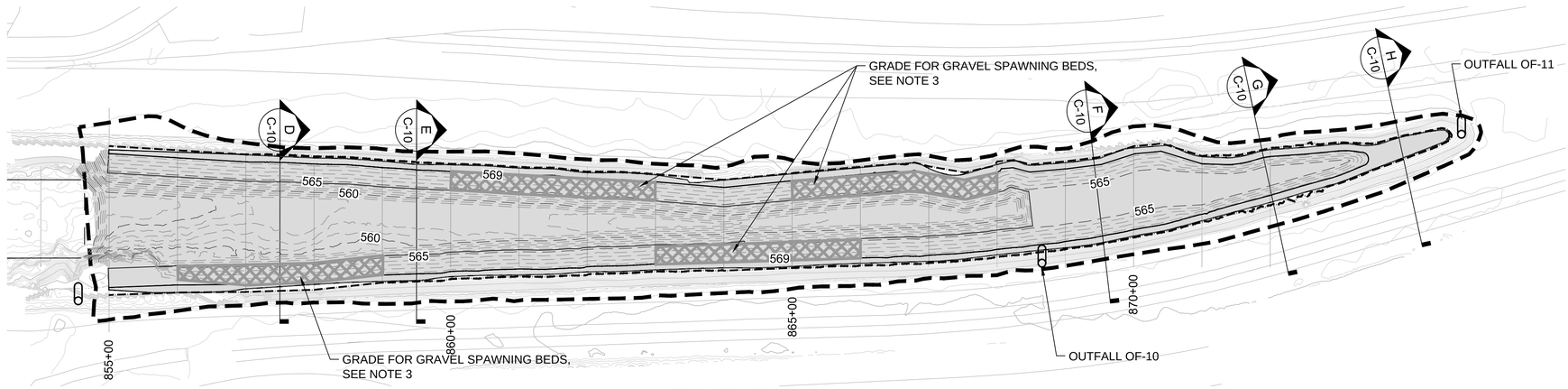
C-08

SHEET NO. 11 OF 23

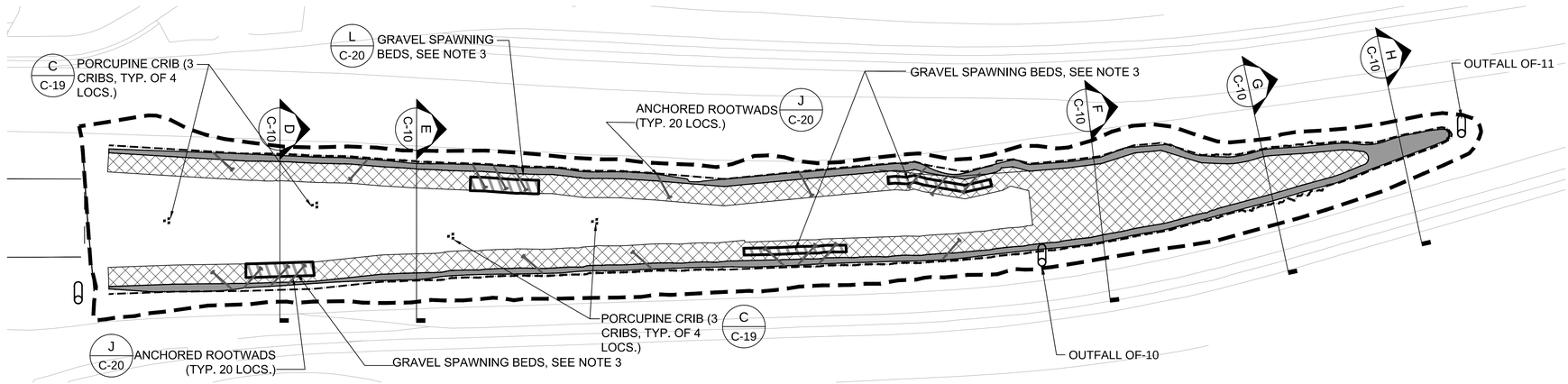
K:\Projects\0287-Honeywell International Inc\Buffalo River Site Strategy & Eng Sup\Construction Plans\C-07_C-08.dwg C-08
May 19, 2014 1:07pm chewett



CAPPING PLAN



FILL GRADING PLAN



HABITAT RESTORATION PLAN

LEGEND

- RESTORATION AREA BOUNDARY
- AVERAGE WSEL (571')
- SUBMERGED AQUATIC VEGETATION (SAV) PLANTING AREA
- EMERGENT VEGETATION (EV) PLANTING AREA
- 564 — IN-WATER FILL
- CAP AREA
- APPROXIMATE GRAVEL SPAWNING BED GRADING AREA
- GRAVEL SPAWNING BED
- PORCUPINE CRIB
- ANCHORED ROOTWAD

NOTES

1. IN-WATER FILL WILL BE PLACED OVER THE ENTIRE GRADING AREA SHOWN ON THIS DRAWING. THE FILL GRADING PLAN SHOWS THE FINAL IN-WATER FILL CONTOURS WITHIN THE CITY SHIP CANAL.
2. FOR DETAILS ON THE VARIOUS PLANTING TYPES (SAV & EV), SEE G-01. REFER TO SPECIFICATION FOR PLANT PREPARATION AND PLANTING EXECUTION. THE UPLAND LIMIT OF THE EV PLANTINGS IS AT ELEVATION 571'. FIELD VERIFY THE 571' ELEVATION.
3. LOCATION AND GRADING FOR GRAVEL SPAWNING BEDS MAY VARY WITHIN THE LIMITS SHOWN AS APPROVED BY THE OWNER'S REPRESENTATIVE.
   3.1. PROVIDE A TOTAL COVERAGE AREA NO LESS THAN 7,000 SQUARE FEET DIVIDED BETWEEN FOUR (4) ISOLATED AREAS RANGING FROM 2,500 TO 1,000 SQUARE FEET EACH.
4. EXISTING OUTFALLS TO REMAIN INTACT AND FUNCTIONAL. SEE C-19 FOR OUTFALL SCOUR PROTECTION TO BE INSTALLED.

OUTFALLS	
OUTFALL ID	RIPRAP WIDTH (INCHES)
OF-10	72
OF-11	72

NORTH

0 100 200

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

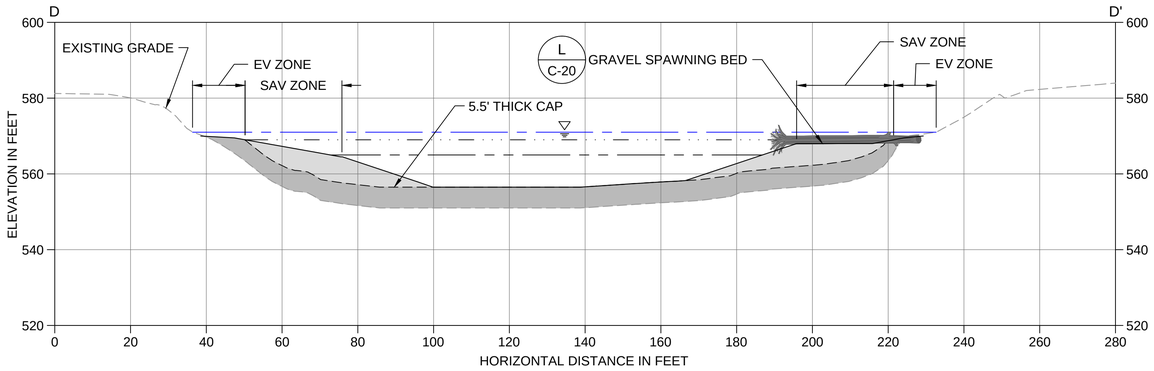
DESIGNED BY: M. REEMTS/J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: S. BAGNULL
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

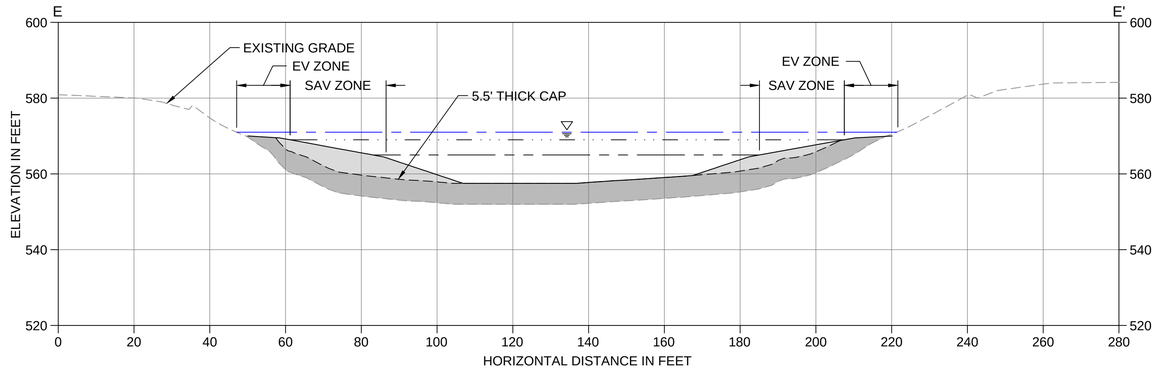
HABITAT RESTORATION PLAN VIEW - CITY SHIP CANAL

C-09

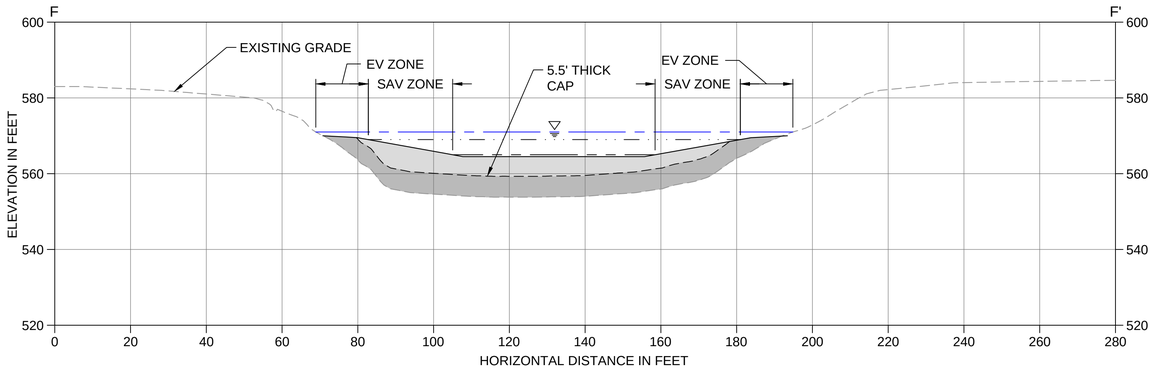
SHEET NO. 12 OF 23



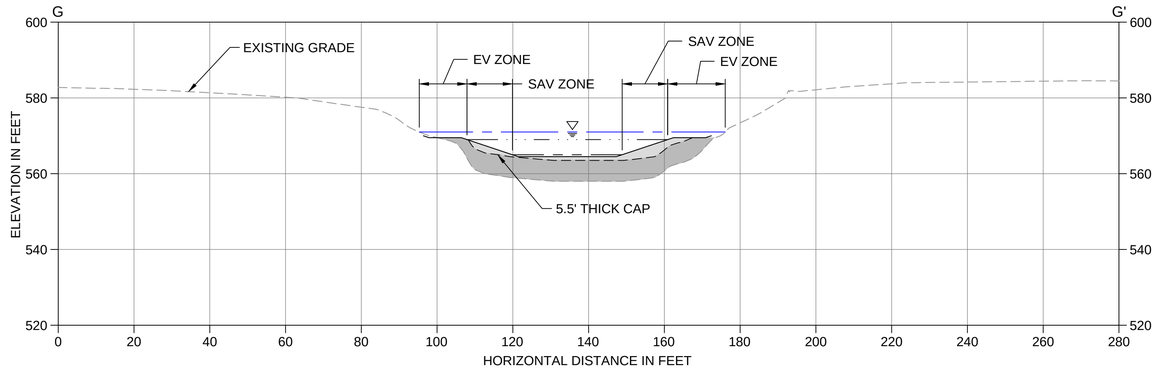
D C-09 SECTION D-D'
SCALE:1" = 20'



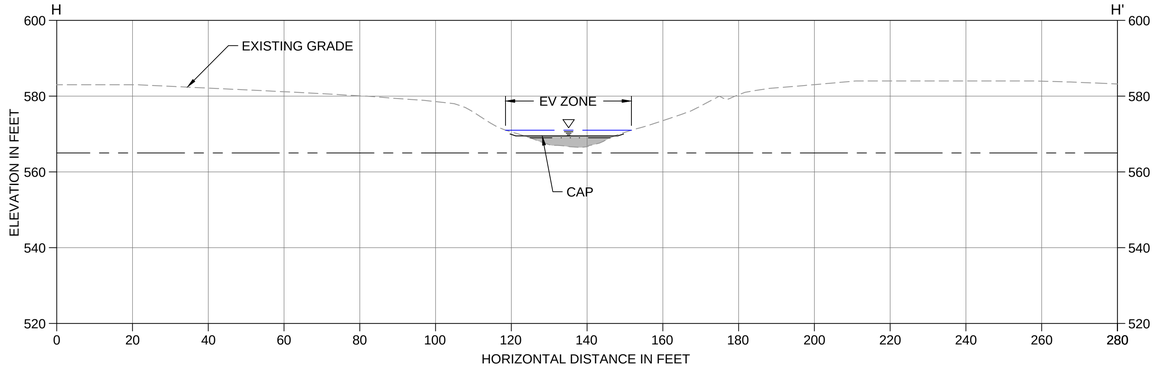
E C-09 SECTION E-E'
SCALE:1" = 20'



F C-09 SECTION F-F'
SCALE:1" = 20'



G C-09 SECTION G-G'
SCALE:1" = 20'



H C-09 SECTION H-H'
SCALE:1" = 20'

LEGEND:

- EXISTING MUDLINE
- AVERAGE WSEL (571')
- FINISHED SUBGRADE
- EV ZONE LOWER ELEVATION LIMIT (569')
- SAV ZONE LOWER ELEVATION LIMIT (565')
- CAP SURFACE
- LIMIT OF CAP PLACEMENT
- ADDITIONAL IN-WATER FILL FOR HABITAT RESTORATION

0 20 40
SCALE IN FEET

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

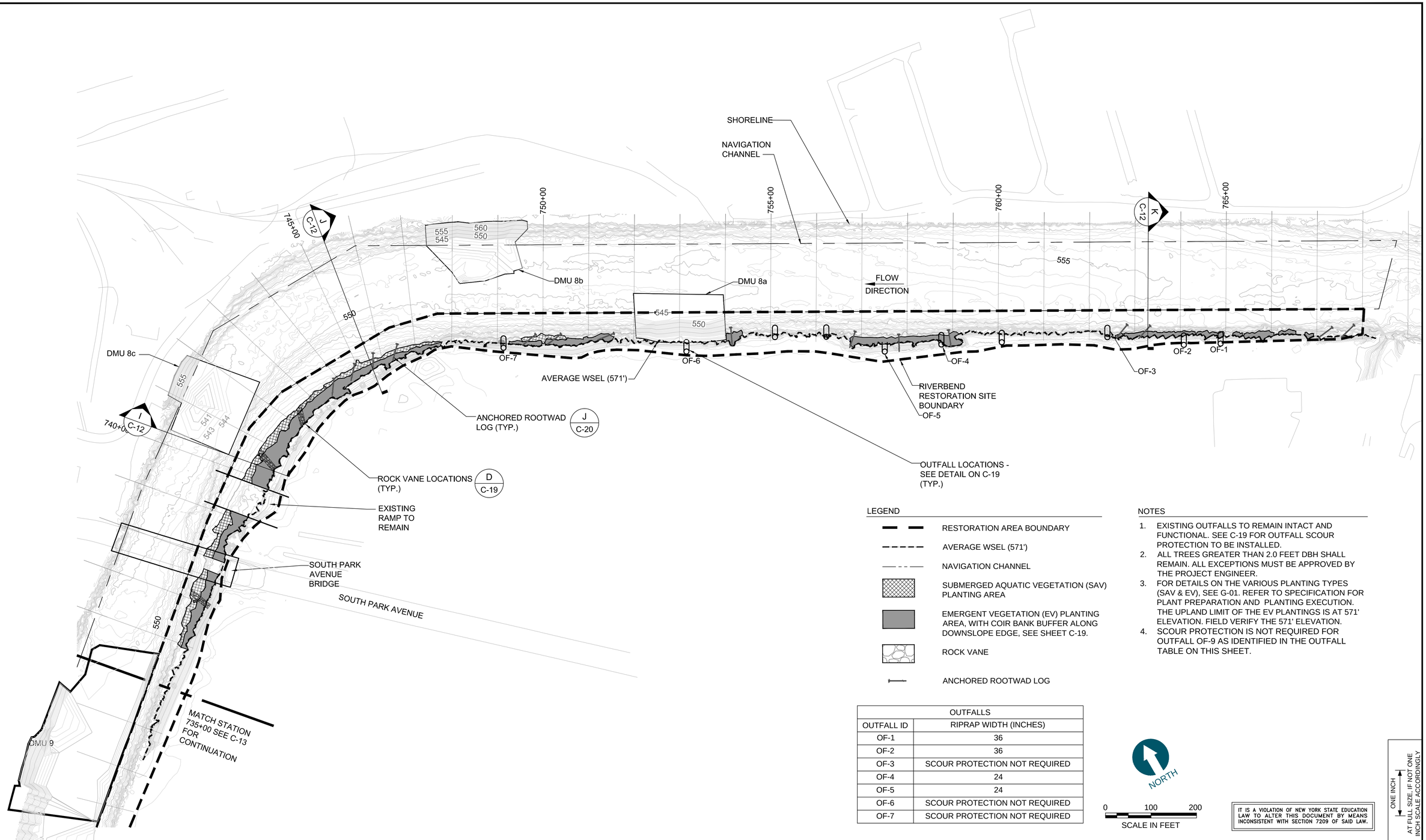
DESIGNED BY: M. REEMTS/J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: S. BAGNULL
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

CROSS-SECTIONS - CITY SHIP CANAL

C-10

SHEET NO. 13 OF 23



LEGEND

- RESTORATION AREA BOUNDARY
- AVERAGE WSEL (571')
- NAVIGATION CHANNEL
- SUBMERGED AQUATIC VEGETATION (SAV) PLANTING AREA
- EMERGENT VEGETATION (EV) PLANTING AREA, WITH COIR BANK BUFFER ALONG DOWNSLOPE EDGE, SEE SHEET C-19.
- ROCK VANE
- ANCHORED ROOTWAD LOG

NOTES

1. EXISTING OUTFALLS TO REMAIN INTACT AND FUNCTIONAL. SEE C-19 FOR OUTFALL SCOUR PROTECTION TO BE INSTALLED.
2. ALL TREES GREATER THAN 2.0 FEET DBH SHALL REMAIN. ALL EXCEPTIONS MUST BE APPROVED BY THE PROJECT ENGINEER.
3. FOR DETAILS ON THE VARIOUS PLANTING TYPES (SAV & EV), SEE G-01. REFER TO SPECIFICATION FOR PLANT PREPARATION AND PLANTING EXECUTION. THE UPLAND LIMIT OF THE EV PLANTINGS IS AT 571' ELEVATION. FIELD VERIFY THE 571' ELEVATION.
4. SCOUR PROTECTION IS NOT REQUIRED FOR OUTFALL OF-9 AS IDENTIFIED IN THE OUTFALL TABLE ON THIS SHEET.

OUTFALLS	
OUTFALL ID	RIPRAP WIDTH (INCHES)
OF-1	36
OF-2	36
OF-3	SCOUR PROTECTION NOT REQUIRED
OF-4	24
OF-5	24
OF-6	SCOUR PROTECTION NOT REQUIRED
OF-7	SCOUR PROTECTION NOT REQUIRED

NORTH

0 100 200

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0287-Honeywell International Inc\Buffalo River Site Strategy & Eng Sup\Construction Plans\C-11_C-12.dwg C-11

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REV	DATE	BY	APP'D	DESCRIPTION

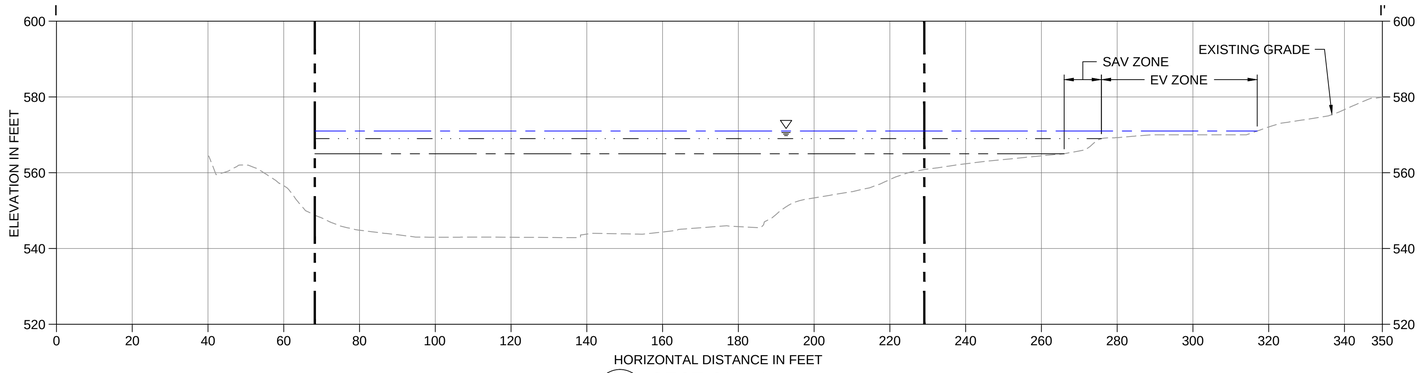
DESIGNED BY: J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

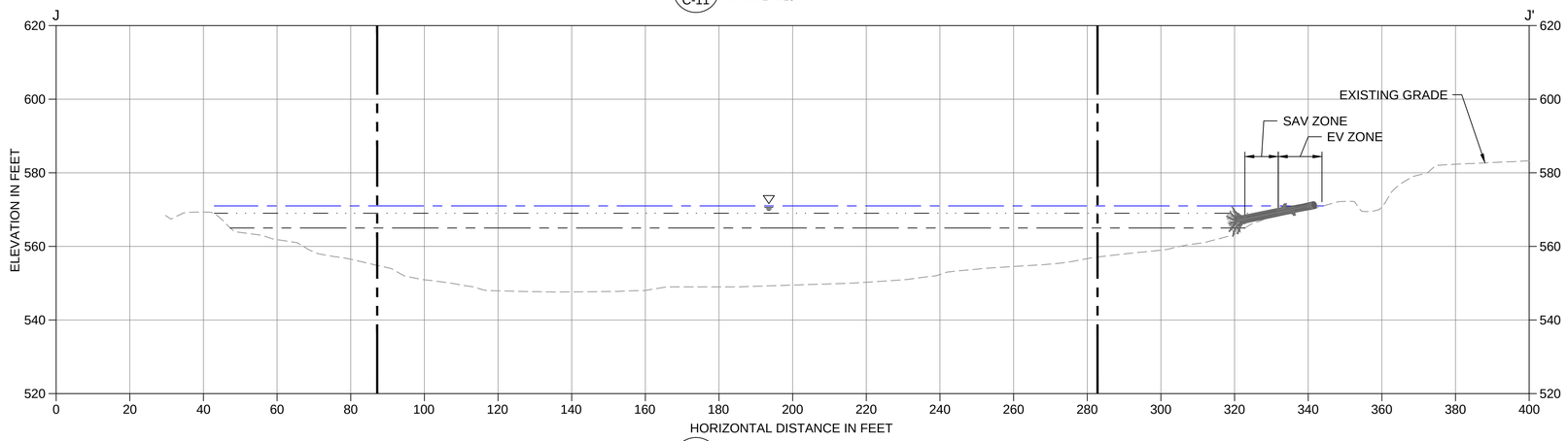
HABITAT RESTORATION PLAN VIEW - RIVERBEND (EAST)

C-11

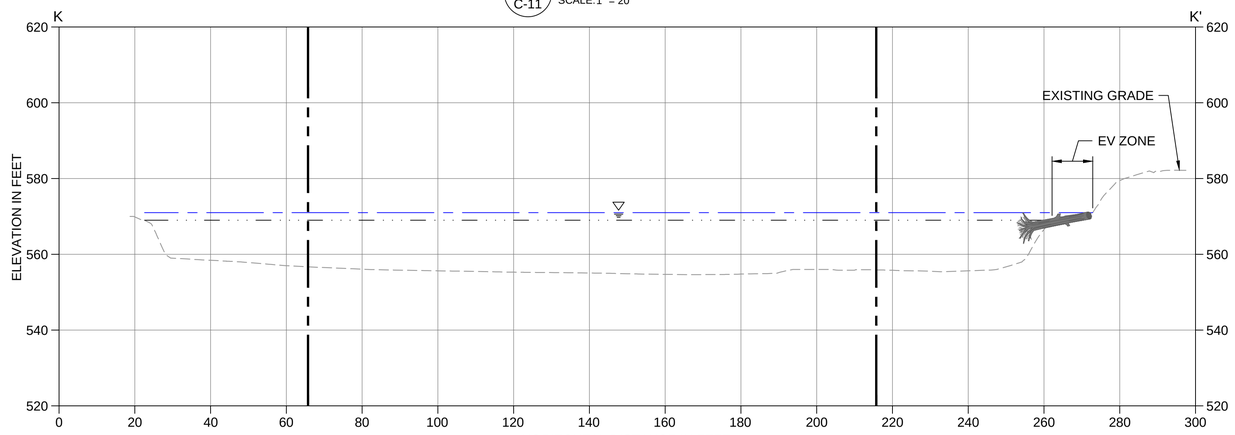
SHEET NO. 14 OF 23



I C-11 SECTION I-I'
SCALE:1" = 20'



J C-11 SECTION J-J'
SCALE:1" = 20'



K C-11 SECTION K-K'
SCALE:1" = 20'

LEGEND:

- EXISTING MUDLINE
- AVERAGE WSEL (571')
- EV ZONE LOWER ELEVATION LIMIT (569')
- SAV ZONE LOWER ELEVATION LIMIT (565')
- NAVIGATION CHANNEL BOUNDARY

0 20 40
SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

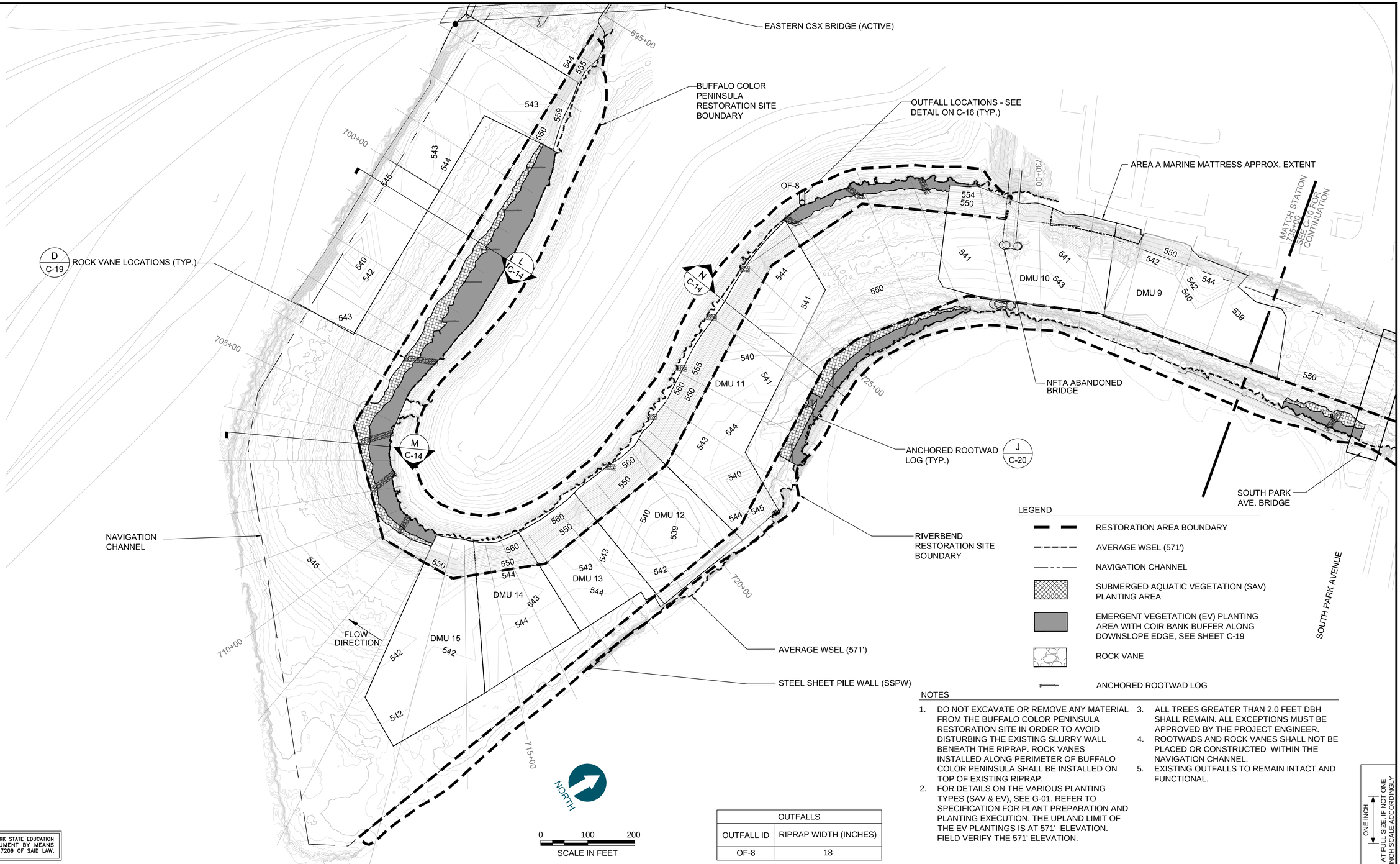
DESIGNED BY: J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

CROSS-SECTIONS - RIVERBEND (EAST)

C-12

SHEET NO. 15 OF 23



LEGEND

- RESTORATION AREA BOUNDARY
- AVERAGE WSEL (571')
- NAVIGATION CHANNEL
- SUBMERGED AQUATIC VEGETATION (SAV) PLANTING AREA
- EMERGENT VEGETATION (EV) PLANTING AREA WITH COIR BANK BUFFER ALONG DOWNSLOPE EDGE, SEE SHEET C-19
- ROCK VANE
- ANCHORED ROOTWAD LOG

OUTFALLS	
OUTFALL ID	RIPRAP WIDTH (INCHES)
OF-8	18

NOTES

1. DO NOT EXCAVATE OR REMOVE ANY MATERIAL FROM THE BUFFALO COLOR PENINSULA RESTORATION SITE IN ORDER TO AVOID DISTURBING THE EXISTING SLURRY WALL BENEATH THE RIPRAP. ROCK VANES INSTALLED ALONG PERIMETER OF BUFFALO COLOR PENINSULA SHALL BE INSTALLED ON TOP OF EXISTING RIPRAP.
2. FOR DETAILS ON THE VARIOUS PLANTING TYPES (SAV & EV), SEE G-01. REFER TO SPECIFICATION FOR PLANT PREPARATION AND PLANTING EXECUTION. THE UPLAND LIMIT OF THE EV PLANTINGS IS AT 571' ELEVATION. FIELD VERIFY THE 571' ELEVATION.
3. ALL TREES GREATER THAN 2.0 FEET DBH SHALL REMAIN. ALL EXCEPTIONS MUST BE APPROVED BY THE PROJECT ENGINEER.
4. ROOTWADS AND ROCK VANES SHALL NOT BE PLACED OR CONSTRUCTED WITHIN THE NAVIGATION CHANNEL.
5. EXISTING OUTFALLS TO REMAIN INTACT AND FUNCTIONAL.

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

HABITAT RESTORATION PLAN VIEW - BUFFALO COLOR PENINSULA AND RIVERBEND (WEST)

C-13

SHEET NO. 16 OF 23

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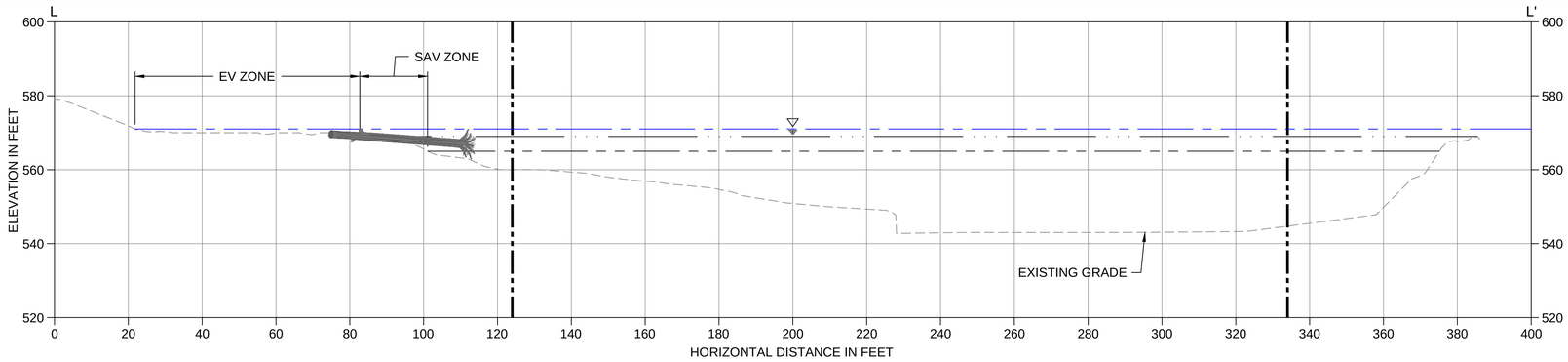
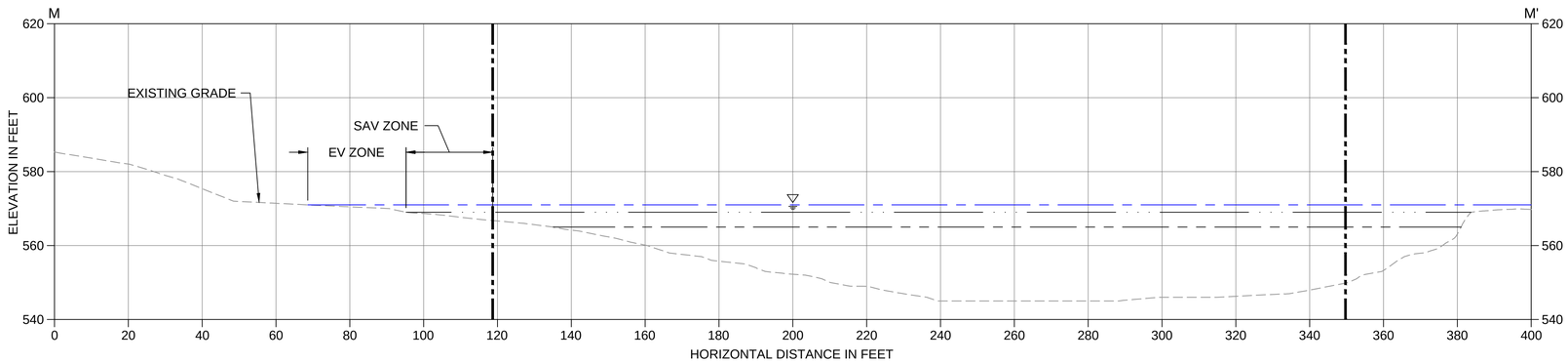
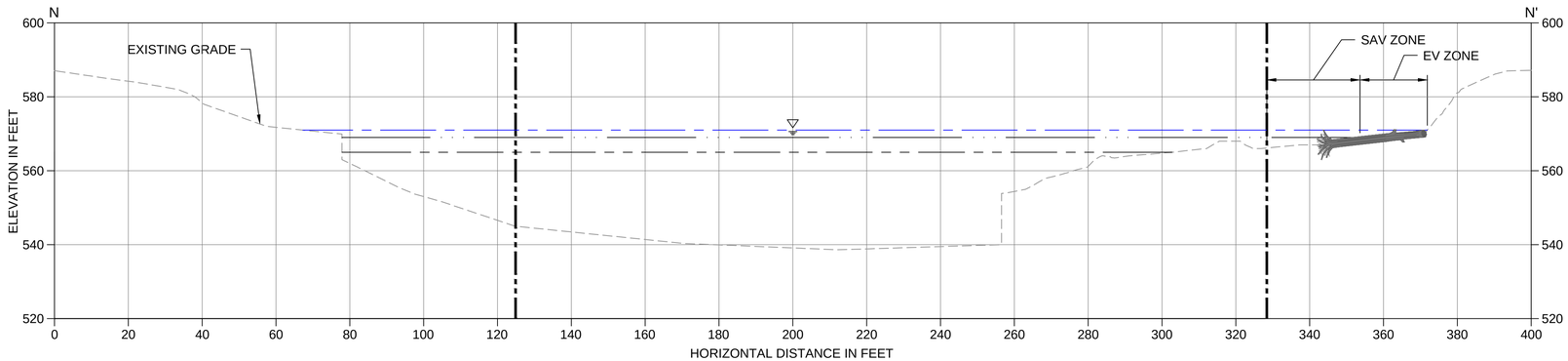
May 19, 2014 1:08pm chewett



L / C-13 SECTION L-L'
SCALE:1" = 20'



M / C-13 SECTION M-M'
SCALE:1" = 20'



N / C-13 SECTION N-N'
SCALE:1" = 20'

LEGEND:

- EXISTING MUDLINE
- AVERAGE WSEL (571')
- EV ZONE LOWER ELEVATION LIMIT (569')
- SAV ZONE LOWER ELEVATION LIMIT (565')
- NAVIGATION CHANNEL BOUNDARY

0 20 40
SCALE IN FEET

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

CROSS-SECTIONS - BUFFALO COLOR PENINSULA AND RIVERBEND (WEST)

C-14

SHEET NO. 17 OF 23

NOTES

1. ALL TREES GREATER THAN 2.0 FEET DBH SHALL REMAIN. ALL EXCEPTIONS MUST BE APPROVED BY THE PROJECT ENGINEER.
2. FOR DETAILS ON THE VARIOUS PLANTING TYPES (SAV & EV), SEE G-01. REFER TO SPECIFICATION FOR PLANT PREPARATION AND PLANTING EXECUTION. THE UPLAND LIMIT OF THE EV PLANTINGS IS AT 571' ELEVATION. FIELD VERIFY THE 571' ELEVATION.
3. EXISTING OUTFALLS TO REMAIN INTACT AND FUNCTIONAL.
4. SCOUR PROTECTION IS NOT REQUIRED FOR OUTFALL OF-9 AS IDENTIFIED IN THE OUTFALL TABLE ON THIS SHEET.

OHIO STREET

PILES TO REMAIN

NAVIGATION CHANNEL

EXISTING SHEET PILE WALL TO REMAIN

RAMP

EXISTING BOAT RAMP TO REMAIN

INLET

AVERAGE WATER SURFACE ELEVATION (571')

NYSDEC PROPERTY

EXISTING BOAT RAMP TO REMAIN

OHIO STREET SHORELINE RESTORATION SITE BOUNDARY

545
546
547
548

C-16

DMU 44e

OF-9

OUTFALL LOCATIONS - SEE DETAIL ON C-16 (TYP.)

FLOW DIRECTION

545

545+00

550+00

555+00

DMU 44d

545

LEGEND

- RESTORATION AREA BOUNDARY
- AVERAGE WSEL (571')
- NAVIGATION CHANNEL
- EMERGENT VEGETATION (EV) PLANTING AREA WITH COIR BANK BUFFER ALONG DOWNSLOPE EDGE, SEE SHEET C-19

OUTFALLS	
OUTFALL ID	RIPRAP WIDTH (INCHES)
OF-9	SCOUR PROTECTION NOT REQUIRED

NORTH

0 50 100

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

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May 19, 2014 1:08pm chewett

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

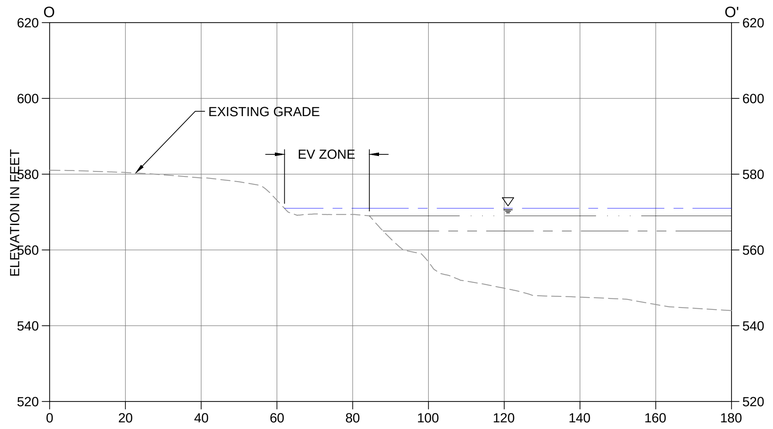
DESIGNED BY: J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

HABITAT RESTORATION PLAN VIEW - OHIO STREET SHORELINE

C-15

SHEET NO. 18 OF 23



O / C-15 SECTION O-O'
SCALE: 1" = 20'

LEGEND:

- EXISTING MUDLINE
- AVERAGE WSEL (571')
- EV ZONE LOWER ELEVATION LIMIT (569')
- SAV ZONE LOWER ELEVATION LIMIT (565')
- NAVIGATION CHANNEL BOUNDARY

0 20 40
SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

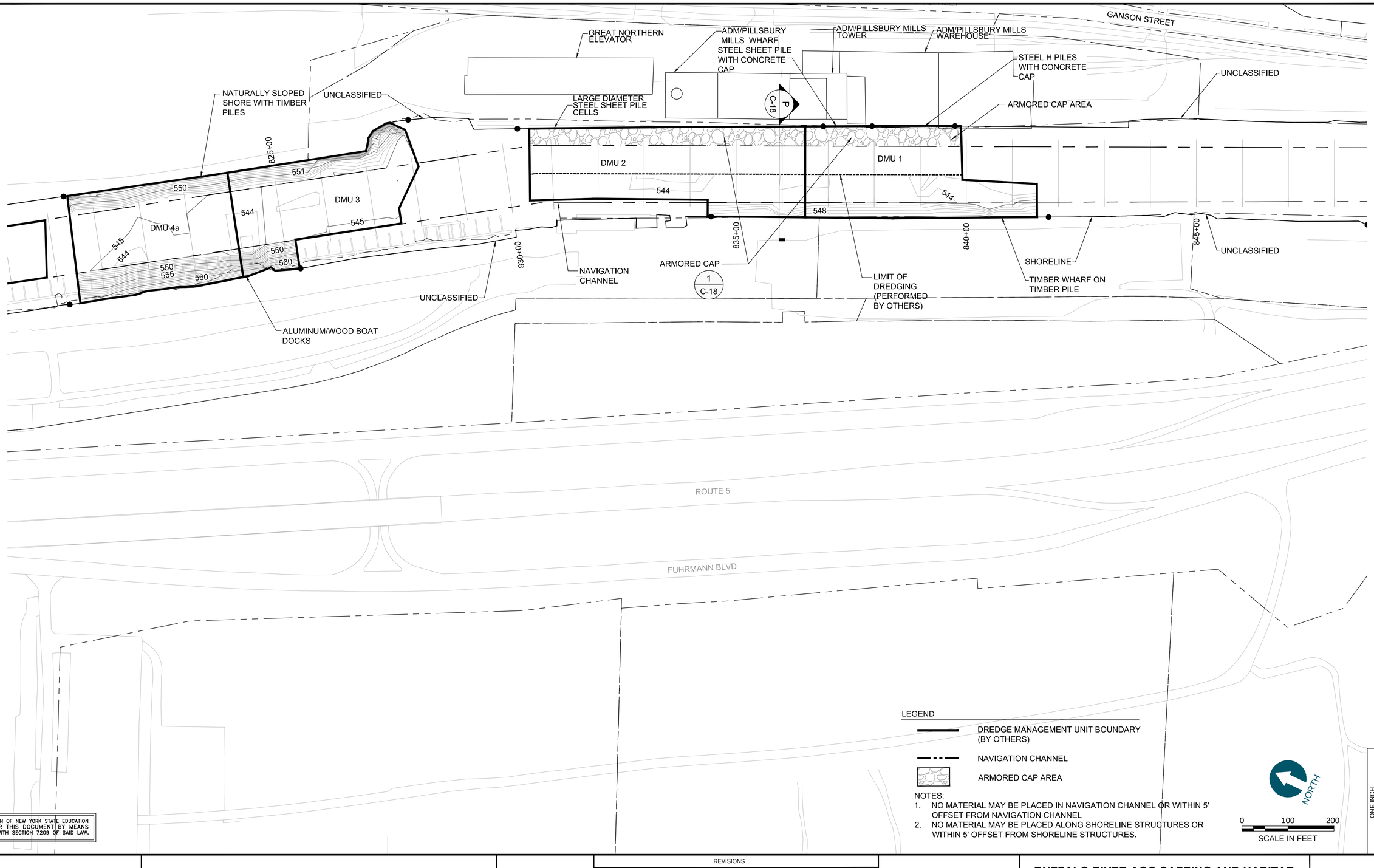
DESIGNED BY: J. GAFFNEY
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

CROSS-SECTIONS - OHIO STREET SHORELINE

C-16

SHEET NO. 19 OF 23



LEGEND

- DREDGE MANAGEMENT UNIT BOUNDARY (BY OTHERS)
- NAVIGATION CHANNEL
- ARMORED CAP AREA

NOTES:

1. NO MATERIAL MAY BE PLACED IN NAVIGATION CHANNEL OR WITHIN 5' OFFSET FROM NAVIGATION CHANNEL
2. NO MATERIAL MAY BE PLACED ALONG SHORELINE STRUCTURES OR WITHIN 5' OFFSET FROM SHORELINE STRUCTURES.

NORTH

0 100 200

SCALE IN FEET

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0287-Honeywell International Inc\Buffalo River Site Strategy & Eng Sup\Construction Plans\C-17.dwg C-17

May 19, 2014 1:09pm chewett

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

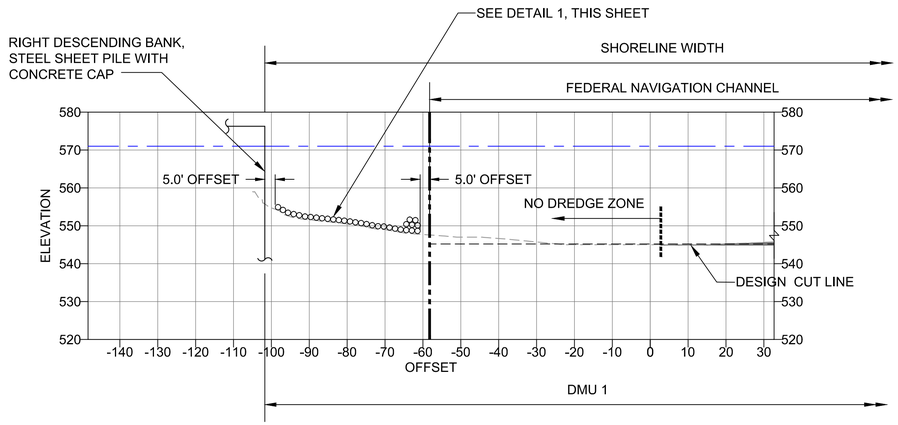
DESIGNED BY: M. HENDERSON
DRAWN BY: C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

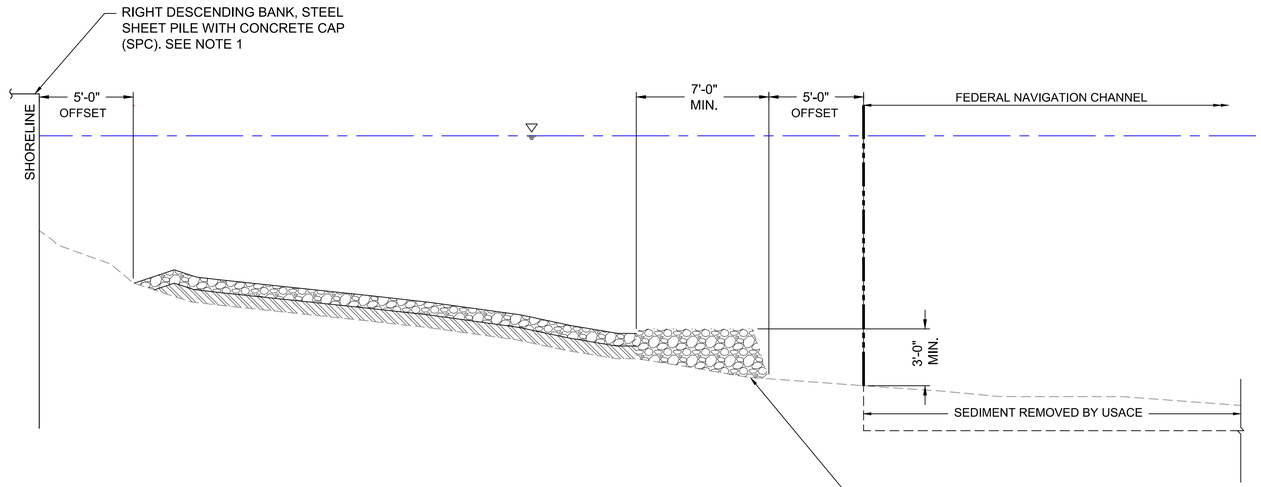
CAPPING PLAN VIEW - ADM PILLSBURY

C-17

SHEET NO. 20 OF 23



P / C-17 SECTION P-P'
SCALE:1" = 20'



MATERIAL SIZES & LAYER THICKNESS			
LEGEND	LAYER	MIN THICKNESS	D50
	ARMOR	15 INCHES	6.0 INCH
	FILTER	12 INCHES	0.75 INCH

* NO MATERIAL MAY BE PLACED IN NAVIGATION CHANNEL.

1 / C-17 DETAIL
SCALE:1" = 4'

NOTE:
1. SHORELINE ALONG ARMOR CAP AREA IS EITHER STEEL "H" PILES WITH CONCRETE CAP, STEEL SHEET PILE WITH CONCRETE CAP, OR LARGE DIAMETER STEEL SHEET PILE CELLS.

LEGEND:
- EXISTING MUDLINE
- AVERAGE WSEL (571')
- NAVIGATION CHANNEL BOUNDARY
- USACE DREDGE CUT LINE (GLRI PROJECT)
- DREDGING LIMIT

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

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REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

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CHECKED BY: M. REEMTS
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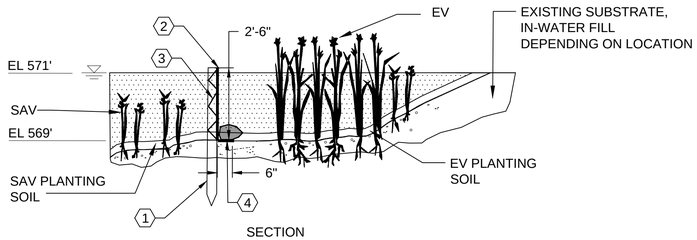
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

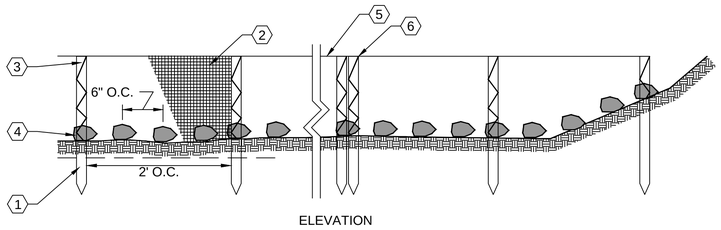
CROSS-SECTIONS - ADM PILLSBURY

C-18

SHEET NO. 21 OF 23



SECTION



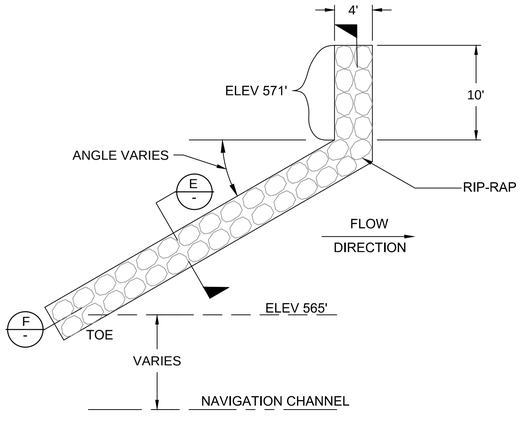
ELEVATION

A - COIR BANK BUFFER CROSS-SECTION

SCALE:NOT TO SCALE

NOTES:

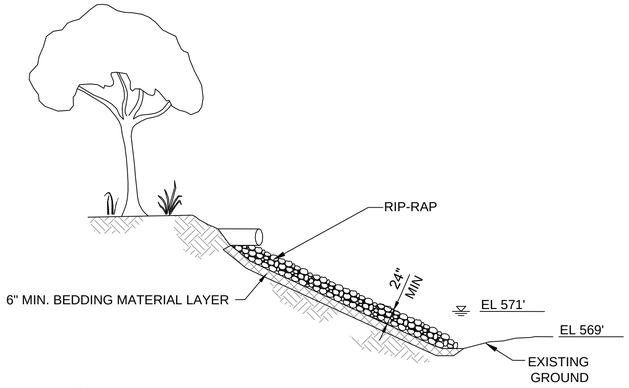
1. WOOD STAKES
   - 1.1. 2" X 2" X 60" LONG
   - 1.2. DRIVE STAKES EVERY 2' O.C. INTO SUBSTRATE AT THE LOWER MARGIN OF THE EV PLANTING AREAS
2. COIR FABRIC, SEE SPECIFICATIONS
3. LASHINGS, SEE SPECIFICATIONS
4. LAY EXCESS FABRIC UPSLOPE AT THE BOTTOM OF THE FENCE AND COVER WITH STONES PLACED EVERY 6 INCHES ON CENTER, SEE SPECIFICATIONS.
5. PATTERN REPEATS IN 10' LONG SEGMENTS.
6. DO NOT JOIN OR LASH SEGMENTS TOGETHER. START A NEW SEGMENT BY DRIVING THE FIRST STAKE IN THE NEW SEGMENT SO IT TOUCHES THE END STAKE FOR THE PREVIOUS, ADJACENT SEGMENT.
7. TIE COIR BANK BUFFER INTO THE SHORE AT ENDS OF EV PLANTING AREAS.



D - ROCK VANE PLAN VIEW

C-07

SCALE:NOT TO SCALE

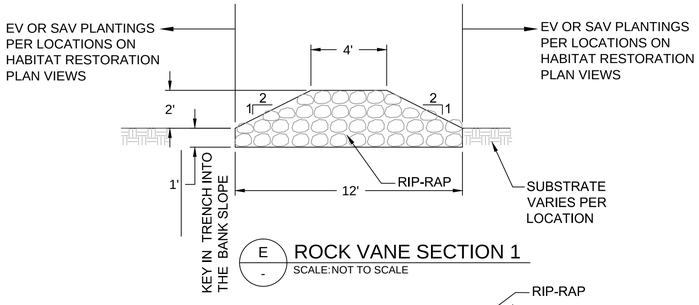


B - TYP. OUTFALL SCOUR PROTECTION

SCALE:NOT TO SCALE

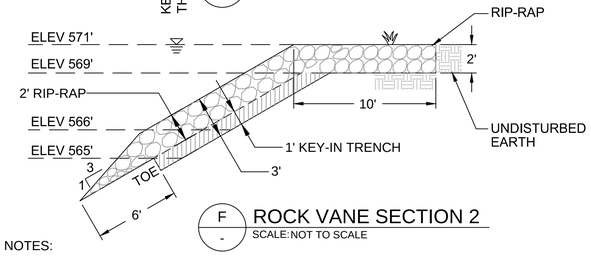
NOTES:

1. PROTECT ALL OUTFALLS DURING CONSTRUCTION.
2. ALL OUTFALLS WITHIN SAV AND EV PLANTING AREAS SHALL RECEIVE OUTFALL SCOUR PROTECTION.
3. SCOUR PROTECTION SHALL STOP AT 569' ELEVATION IN ALL CASES.
4. OUTFALL INFORMATION WAS NOT AVAILABLE FOR ALL OUTFALLS WITHIN THE RESTORATION SITES. PRIOR TO HABITAT RESTORATION ACTIVITIES, THE LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
5. MATERIAL EXCAVATED FOR PLACEMENT OF THE BEDDING MATERIAL LAYER SHALL BE SIDE CAST EVENLY ON ADJACENT SIDES OF THE OUTFALL SCOUR PROTECTION. SIDE CAST MATERIAL DEPTH SHALL NOT EXCEED 1 FOOT AS MEASURED FROM THE EXISTING GRADE. SIDE CASTING OF MATERIAL SHALL OCCUR PRIOR TO PLACEMENT OF PLANTING SUBSTRATE.



E - ROCK VANE SECTION 1

SCALE:NOT TO SCALE



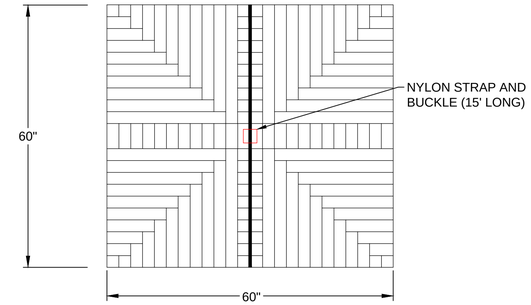
F - ROCK VANE SECTION 2

SCALE:NOT TO SCALE

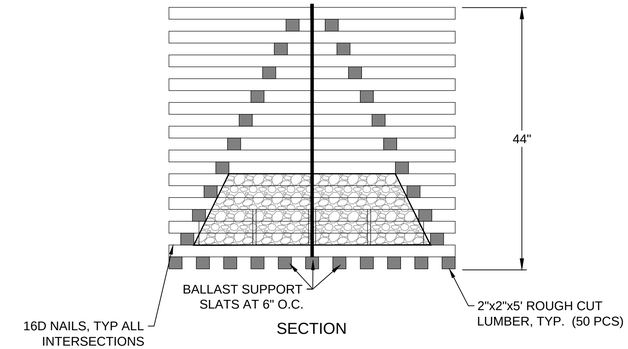
NOTES:

1. MATERIAL EXCAVATED FOR PLACEMENT OF THE ROCK VANES SHALL BE SIDE CAST ON THE UPSTREAM SIDE OF THE VANES. SIDE CAST MATERIAL DEPTH SHALL NOT EXCEED 1 FOOT AS MEASURED FROM THE EXISTING GRADE. SIDE CASTING OF MATERIAL SHALL OCCUR PRIOR TO PLACEMENT OF PLANTING SUBSTRATE.

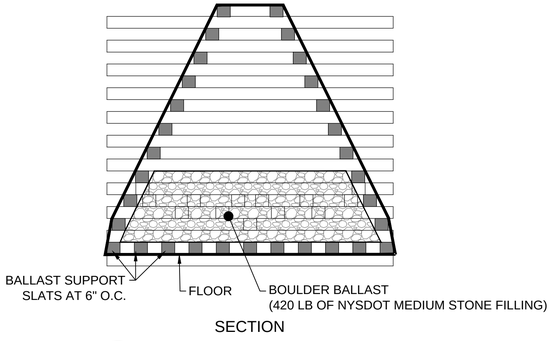
EXAMPLE COMPLETED CRIB
(ROCK FILL NOT SHOWN)



PLAN



SECTION



SECTION

C - TYP. PORCUPINE CRIB

C-09

SCALE:NOT TO SCALE

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT

NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: J. GAFFNEY
DRAWN BY: J. GAFFNEY/C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

HABITAT RESTORATION DETAILS (1 OF 2)

C-19

SHEET NO. 22 OF 23

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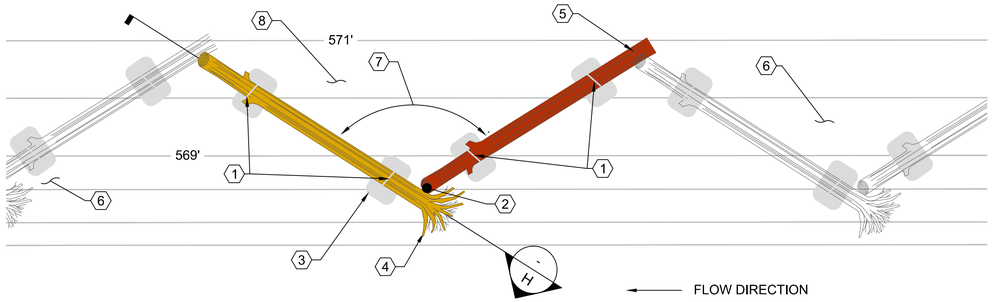
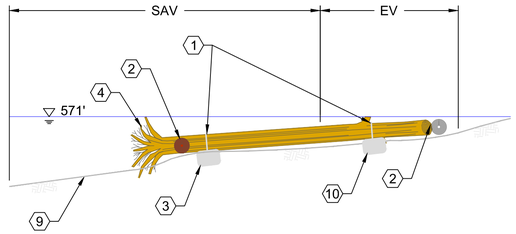


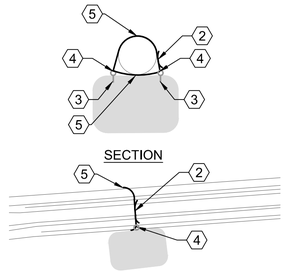
G / C-07 BANK ROOTWAD CHAIN DETAIL
SCALE:NOT TO SCALE

NOTES:

1. CONNECT LOGS AND ROOTWAD LOGS TO NATURAL STONE BLOCKS AT LOCATIONS SHOWN PER BLOCK CONNECTION DETAIL.
2. BUTT ROOTWAD LOGS AND LOGS TOGETHER AT LOCATIONS SHOWN
3. STONE BLOCKS
   - 3.1. MIN. DRY WEIGHT OF 5,500 LB.
   - 3.2. NO MORE THAN 2.0' THICK.
   - 3.3. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
4. ROOTWADS.
   - 4.1. DIMENSIONS: BOLE (TRUNK); 2-FOOT DIAMETER AT BREAST HEIGHT, 35-FOOT LONG (MIN.). ROOTWAD; 6-FOOT DIAMETER AT A DISTANCE OF 4-FEET FROM THE START OF THE ROOTWAD FLARE.
   - 4.2. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
5. LOG POLES.
   - 5.1. DIMENSIONS: 2-FOOT DIAMETER AT BREAST HEIGHT, 35-FOOT LONG (MIN.).
   - 5.2. PLACED TAPERED END BANKWARD.
6. REPEAT PATTERN AS SHOWN ON THE PLANS.
7. ANGLE VARIES AS SHOWN ON THE PLANS.
8. PLANT PROTECTED AREA AS SHOWN ON THE PLANS.
9. FINISHED GRADE AS SHOWN ON THE PLANS.
10. ALLOW BLOCKS TO SETTLE BELOW GRADE.



H / - BANK ROOTWAD CHAIN SECTION
SCALE:NOT TO SCALE



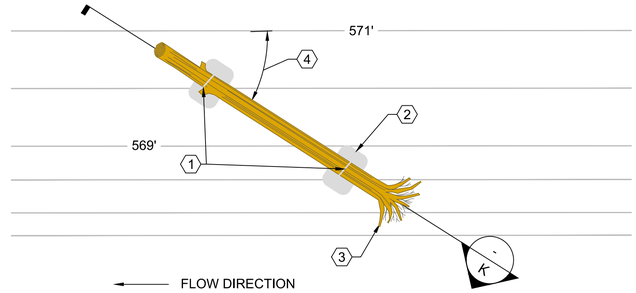
NOTES:

1. USE GALV. WIRE ROPE AND GALV. DROP FORGED WIRE ROPE CLIPS FOR ALL CONNECTIONS, SEE SPECIFICATIONS.
2. APPROVED WIRE ROPE CONNECTION.
3. BOLTS, SEE SPECIFICATIONS.
4. PASS WIRE ROPE THROUGH EYE BOLTS.
5. NOTCH LOG TO WIRE ROPE DIAMETER WHERE ROPE CONTACTS THE LOG.
6. REMOVE ALL SLACK FROM WIRE ROPE BEFORE FINISHING THE CONNECTION
7. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF MODIFICATIONS TO THIS CONNECTION DETAIL FOR APPROVAL BY THE OWNER'S REPRESENTATIVE.

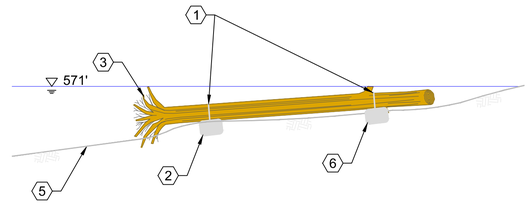
I / - TYP. BLOCK CONNECTION
SCALE:NOT TO SCALE

NOTES:

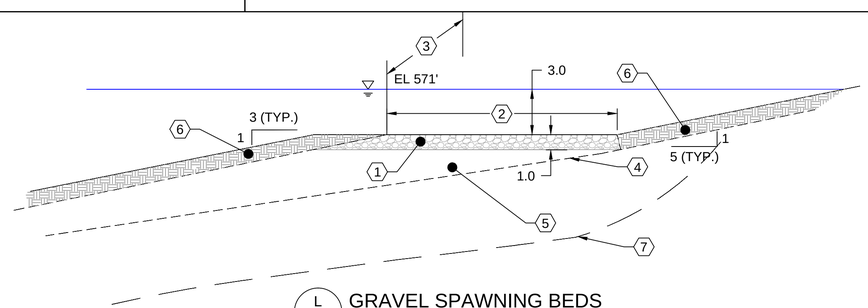
1. CONNECT ROOTWAD LOG TO NATURAL STONE BLOCKS AT LOCATIONS SHOWN PER BLOCK CONNECTION DETAIL.
2. STONE BLOCKS
   - 2.1. MIN. DRY WEIGHT OF 5,500 LB.
   - 2.2. NO MORE THAN 2.0' THICK.
   - 2.3. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. ROOTWADS.
   - 3.1. DIMENSIONS: BOLE (TRUNK); 2-FOOT DIAMETER AT BREAST HEIGHT, 35-FOOT LONG (MIN.). ROOTWAD; 6-FOOT DIAMETER AT A DISTANCE OF 4-FEET FROM THE START OF THE ROOTWAD FLARE.
   - 3.2. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
4. ANGLE VARIES AS SHOWN ON THE PLANS.
5. GRADE AS SHOWN ON THE PLANS.
6. ALLOW BLOCKS TO SETTLE BELOW GRADE.



J / C-09 ANCHORED ROOTWAD DETAIL
SCALE:NOT TO SCALE



K / - ANCHORED ROOTWAD SECTION
SCALE:NOT TO SCALE



L / C-09 GRAVEL SPAWNING BEDS
SCALE:NOT TO SCALE

NOTES:

1. FISH GRAVEL MATERIAL: SEE SPECIFICATIONS.
2. GRAVEL BENCHES MAY VARY IN WIDTH FROM 10 TO 25 FEET. WIDTH MAY VARY ALONG THE LENGTH SO LONG AS THE MINIMUM COVERAGE AREA IS MET.
3. GRAVEL BENCHES MAY VARY IN LENGTH FROM 100 TO 250 FEET.
4. IN-WATER FILL SUBGRADE SURFACE IN ADJACENT SAV AREA VARIES, SEE BACKFILL PLAN ON C-09.
5. IN-WATER FILL.
6. PLANTING SOIL, SEE SPECIFICATIONS.
7. CAP AS-BUILT SURFACE VARIES.

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

DRAFT
NOT FOR CONSTRUCTION

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: J. GAFFNEY
DRAWN BY: J. GAFFNEY/C. HEWETT
CHECKED BY: M. REEMTS
APPROVED BY: P. DOODY
DATE: MAY 2014

BUFFALO RIVER AOC CAPPING AND HABITAT RESTORATION

HABITAT RESTORATION DETAILS (2 OF 2)

C-20

SHEET NO. 23 OF 23